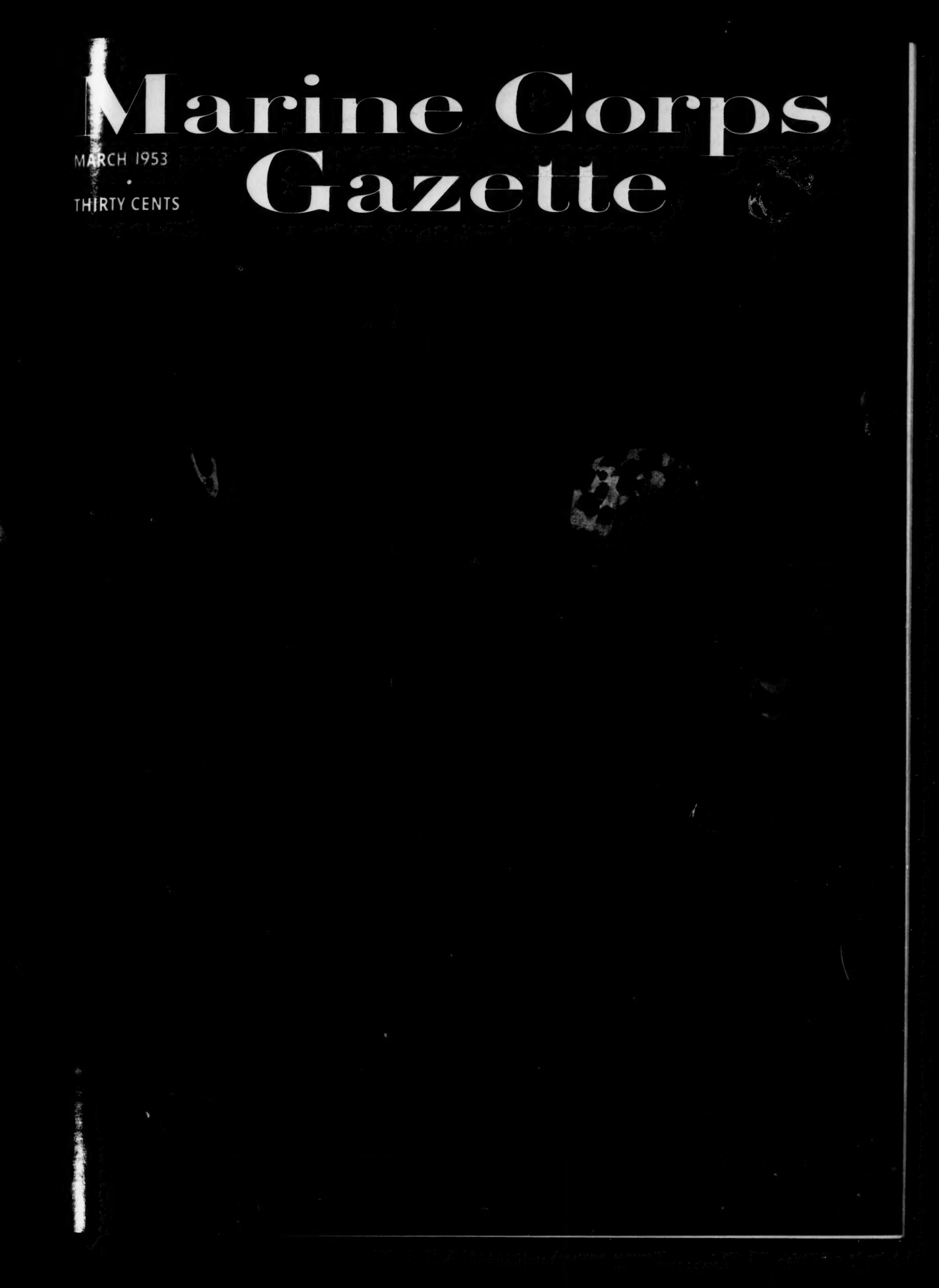
Marine Corps Gazette

MARCH 1953

THIRTY CENTS



Marine Corps Gazette

MARCH 1953
NUMBER 3
VOLUME 37

PROFESSIONAL MAGAZINE FOR UNITED STATES MARINES

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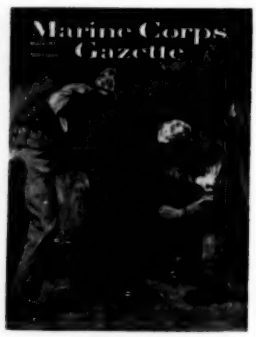

The month of March in Korea heralds the approach of Spring and increased patrol activity by forces on both sides of the line. Our cover illustration, by Cpl Roy Thompsen, depicts the dramatic climax of one of these patrols. The two Marines, who have just tossed a concussion grenade into the bunker to stun the Chinese soldier, are now dragging him out. But the most ticklish part of their job lies ahead —getting the prisoner back to the S-2. On the back cover, in honor of the eighth anniversary of the battle for Iwo Jima, and as a reminder that the fund drive for the United States Marine Corps War Memorial is still going on, we show sculptor Felix de Weldon working on the impressive Iwo Jima statue which is to be erected in the Washington area.

PUBLISHED BY THE MARINE CORPS ASSOCIATION

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message center

Fire teams . . . Big Picture

DEAR SIR:

I am sure that many other subscribers to the *Gazette* read the article in your November issue by Lt Holmes, entitled *Birth of the Fire Team,* with as much interest as I did. The author deserves to be congratulated on a piece that has been waiting to be done.

His background material is interesting, but I don't believe it is particularly pertinent. While I do not deny that the organization of the Shanghai riot company may have had a delayed influence on the organization of our rifle squad . . . there is no proof that it had.

Lt Holmes states . . . squad organization within one of the parachute battalions influenced organization within the Raider battalions . . . I am not in a position to know how the 1st Parachute Bn . . . was organized in 1941, but I know that if the squads were organized into fire teams in August of 1942 they were certainly keeping it to themselves.

In 1942, the forward echelon of the First Marine Raider Bn went to Samoa. There Ken Bailey's company tried out the organization within the squad. . . At the same time I visited the Second Marine Raider Bn . . . Col Carlson had his squads organized into three groups of three men with a squad leader . . . I believe he called them "combat groups."

In February 1943, I flew up from New Caledonia to talk over Carlson's squad organization with him. I was then in command of the First Marine Raider Bn. I spent three days with Carlson . . . [then] . . . flew back down . . . and commenced to reorganize one company . . . using the squad organization Carlson had tried out in combat. . . . The only change we made . . . was to replace the Thompson . . . or Reising . . . with a rifle, so we had two rifles and a BAR per team. We called these "fire groups."

The organization proved itself in the New Georgia operation.

I do not know what organizational changes if any were made in . . . elements of the 1st Division as a result . . . but I have an impression that the squads of one . . . infantry regiment . . . had been reorganized . . . before the division went to Cape Gloucester.

Now . . . at least one parachute battalion was reorganized as a result of its association with the First Raiders rather than the contrary being the case as stated.

In 1944 the Marine Corps Schools received a directive to test the organization . . . already . . . proved on Guadalcanal, New Georgia, and Bougainville by raider battalions. . . . We used in these tests both the ten-man squad and the thirteen-man squad. The advantages of the latter were obvious . . . it is the organization which was adopted.

It is not my intention to detract from the contribution . . . anyone made to the development of this important organizational concept . . . but . . . in the interests of historical accuracy a more . . . complete picture . . . [should] . . . be given. It is my firm belief that chief credit for this concept belongs to Evans Carlson.

S. B. GRIFFITH, II
Col, USMC

Norfolk, Va.

Fire Team Hassle

DEAR SIR:

We would like to thank you for your issue containing *Birth of a Fire Team,* because it settled the argument our squad had been carrying on. Many of us had heard stories of how the fire teams started, but we weren't sure. We thank you a million.

Korea — 3D SQUAD, 3D PLATOON, B-1-5

Last Barrier Booster

DEAR SIR:

Congrats to the *Gazette* for its presentation in the January issue of *Last Barrier* by S. L. A. Marshall. Without a doubt this is one of the most readable articles about the Chosin Reservoir operation written to

Each month the GAZETTE pays five dollars for each letter printed. These pages are intended for comments and corrections on past articles and as a discussion center for pet theories, battle lessons, training expedients, and what have you. Correspondents are asked to keep their communications limited to 200 words or less. Signatures will be withheld if requested; however, the GAZETTE requires that the name and address of the sender accompany the letter as an evidence of good faith.

AVIATION PROGRESS MARKED—Here at Kitty Hawk, N. C., the aviation world recently paid tribute to the Wright Brothers for their achievement of powered flight in a heavier-than-air machine in 1903. And among the aviation pioneers taking part was Igor Sikorsky, whose aircraft have made a major contribution to air progress.

AROUND THE WORLD WITH THE FLYING JACK-OF-ALL-TRADES

ROTARY-WINGED PACK TRAIN—Airlift of vital construction materials, key personnel, and survey teams is routine on the Aluminum Company of Canada's vast smelting and power development project in the rugged Kitimat region of British Columbia. In a few hours big Sikorsky S-55s, operated by Okanagan Helicopters, Ltd., can haul loads mule trains would need days to deliver.

EASY DOES IT—A big H-19 Sikorsky carrying wounded men settles gently to the lawn in front of the Naval Medical Center in Bethesda, Maryland, ending a mercy flight which began on the battlefield. Regular transfer of Korea casualties arriving at nine military air terminals in the U. S. direct to service hospitals is planned by the Military Air Transport Service.

"SKY PILOT"—Ministering to the spiritual needs of men at sea is often difficult because of rough seas and the distance between ships in a fleet. But with helicopters such as the Sikorsky HO3S-1 shown above, chaplains can move from ship to ship with ease and come aboard by landing or by rescue winch.

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date! While one is reading it he can, without reaching for his imagination, "see" what is taking place.

Special note is taken of the first four or five paragraphs of this article which could be considered in the light of "praise from Caesar." An analysis such as that made by this distinguished author is noteworthy in view of his record in letting "the chips fall where they may" when writing of tactics and leaders, irrespective of the service involved.

I would especially commend to future rifle platoon leaders those paragraphs pertinent to the quality of leadership and the decisions which were made in spite of the difficulties involved.

Although I realize that the next issue will contain Part II, I cannot refrain from shouting, "More, more."

WM. R. MILLER, JR.
Quantico, Va. 1stLt, USMC

More Tactics—Less History

DEAR SIR:

Your December issue was fascinating. The article on Chinese Gordon was absorbing. The article on motor transport was entertaining. One small fly sticks in the syrup . . . I read the *Gazette* to learn—not to be entertained.

We have no shortage of problems in this new Marine Corps of ours. You should trot out some of these skeletons in the family closet and see if the family magazine can find some fertile minds to put good solid flesh and muscle on them. If we do not, we will find ourselves singing the praises of something that no longer exists, selling something to the public that we no longer have to sell. Our day to day problems should offer a fruitful field for the *Gazette* to explore, leaving the more erudite research and historical pieces to those who specialize in them.

PATRICK C. ROE
Quantico, Va. Capt, USMC

ED: *All work and no play makes Jack a dull boy. Many a modern commander has been helped out of a tough spot by lessons learned from Caesar.*

Army Views FSCC

DEAR SIRS:

Enclosed is my order for your excellent publication, the *Marine Corps Gazette.*

The articles on artillery have been very good lately and I enjoyed . . . the article by LtCol Robert D. Heinl, Jr., *FSCC: Two Schools of Thought*—a very fine article and interesting to me.

The Army seems to fall in between the two courses described by LtCol Heinl in that the officer-in-charge of the FSCC is in the division G-3 section but operates in the field in the division artillery CP. Ordinarily Air Force officers work with this officer but it does seem

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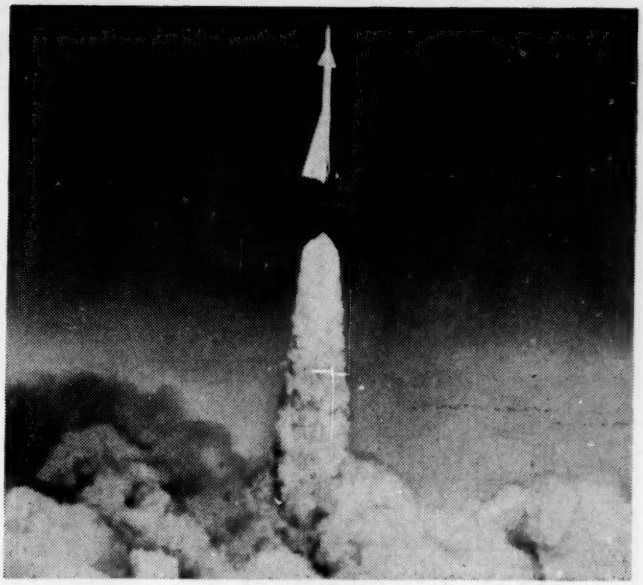
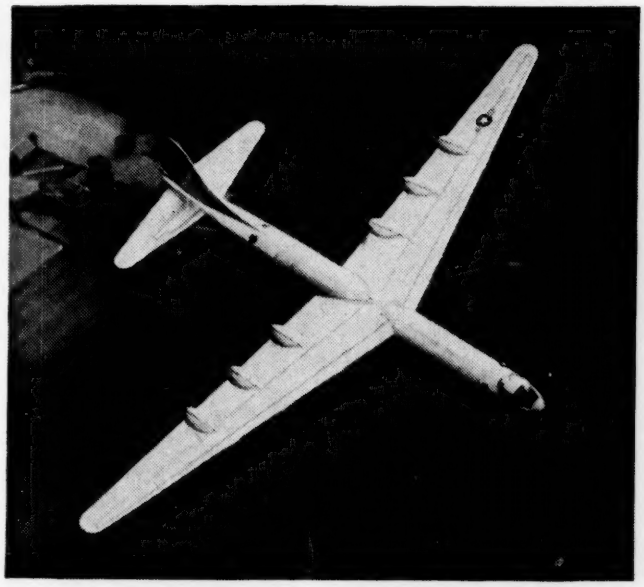
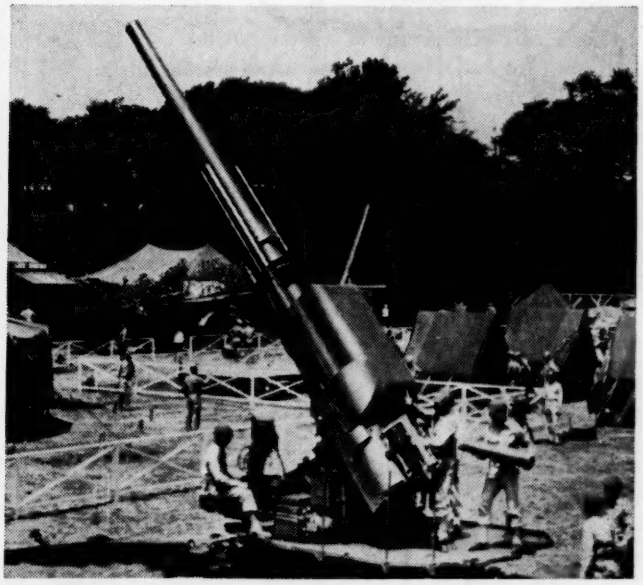


Electronic controls for guided missiles



Radar bombing systems for the Nation's planes



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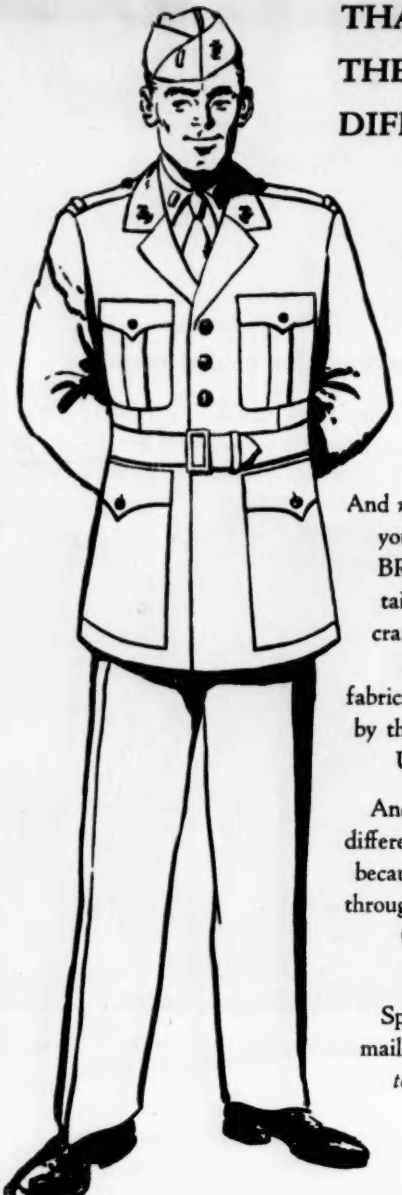

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at times to be very cumbersome.

One great advantage the Marine Corps has is in working with its own air arm. We must deal with a separate service. I imagine you probably run into that difficulty with the Navy every once in awhile.

I am looking forward to seeing the *Gazette* for the next year. You are to be congratulated on your fine publication.

THOMAS J. STANTON, JR.
Jersey City, N. J. 1stLt, USA

Know Your Men

DEAR SIR:

Re Col E. O. Price's article *An Ounce of Prevention* in Jan 53, *Gazette*—

Reemphasizing "Know Your Men."

J. K. MCCOLLUM
Camp Lejeune, N. C. Maj, USMC

Rubber Stamp Forum

DEAR SIR:

Have just finished the January issue and it is the best yet.

Came across the trouble 2dLt Mazerov is having with his rubber stamps. We have overcome the problem here in the supply office by making a few changes.

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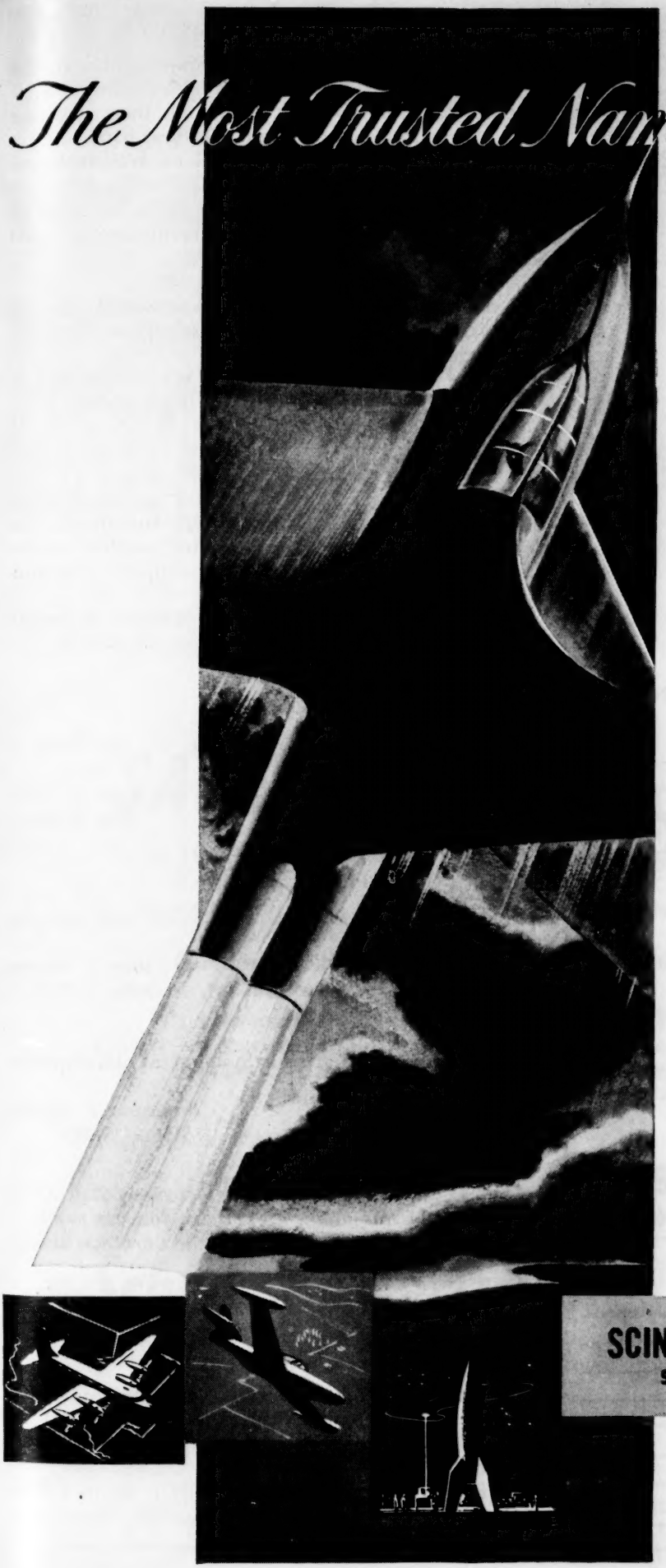

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3. Put the two date hands back on, reassemble and you have: 12 Jan 1953.

By adding two additional day hands we come up with a very useful voucher numbering stamp:—1043 Jan 1953.

This stamp saves lots of time.

How about a few more articles on supply, showing the troops some of the problems supply personnel are up against?

WALTER R. DILLAW
TSgt, USMC

Camp Lejeune, N. C.

DEAR SIR:

In regard to Lt Mazerov's letter appearing in the January *Message Center* I would like to comment that with some "Marine Corps Ingenuity" and five minutes time, he has been using the date stamp he seeks without even knowing it. . .

MAURICE A. BERDAN
SSgt, USMCR

Santa Ana, Calif.

DEAR SIR:

. . . Rearrange the day, month, and year bands of the stamp. . .

KIRK FLEMING
MSgt, USMC

Washington, D. C.

DEAR SIR:

. . . Take the wheels and guides out and move the bands around. . .

JOHN F. MEYERS
MSgt, USMC

Joliet, Ill.

. . . The civilian-type date stamp may be converted into a regulation type. . .

MARSHAL F. HOWEY
MSgt, USMC

Anacostia, Md.

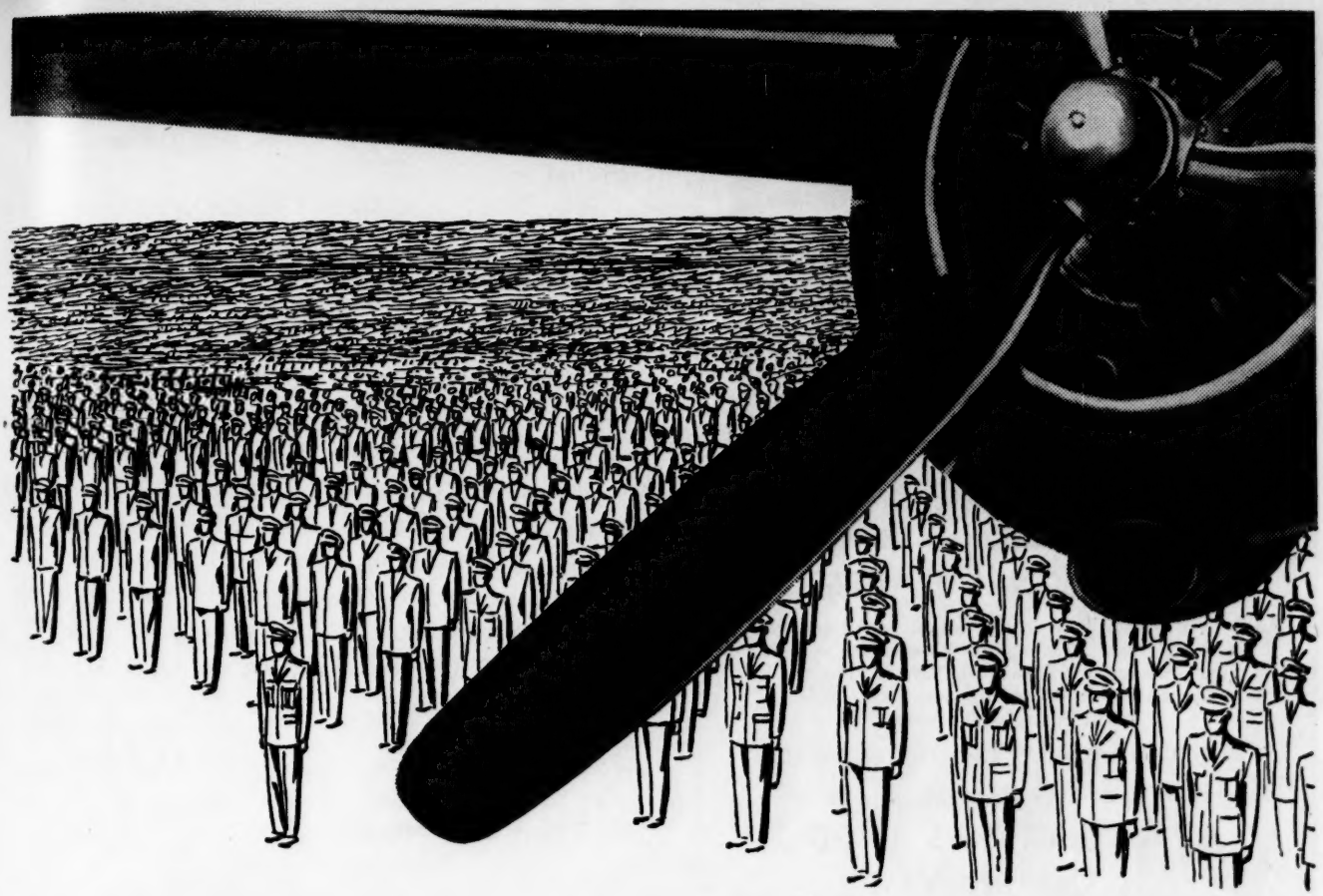
ED: *It was interesting to note that many Staff NCOs had solved this problem. Perhaps you are wrestling with a problem that someone in the Corps has already licked. Why not ask our readers?*

Ingenuity???

DEAR SIR:

I have had a lot of fun reading *Leatherhead in Korea.* Of the many excellent cartoons, "Turn out the guard! Someone stole the stars off'n the General's staff car!" deserves further comment.

To me, it shows that one picture is worth a thousand words, for it portrays the uncanny ingenuity of



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My congratulations to SSgt Packwood.

ROBERT L. GOVER
Capt, USMC

El Toro, Calif.

Translation

DEAR SIR:

Since 1951, I have been a regular reader of the *Gazette* on the other side of the Pacific . . . In the April *Gazette*, I translated LtCol Harry W. Edwards' article *Danger, Mines!* into Chinese, then published it in *Military Translation Digest* which is the most popular magazine in Free China on world affairs. *M.T.D.* publishes very selected military writings all over the world. They appreciated having the U. S. Marines step in.

HO YAH HONG
Lt, CNA

Formosa

Old Timers Over Forty-Five

DEAR SIR:

Re—Capt McCloskey's letter, "Search Your Conscience." Comparatively, I consider myself an "Old Timer" with nineteen years of service (for pay purposes), eight of which were spent in the organized reserves.

My question is, "What has a master sergeant who has reached the age of forty-five to look forward to in the line of promotion?"

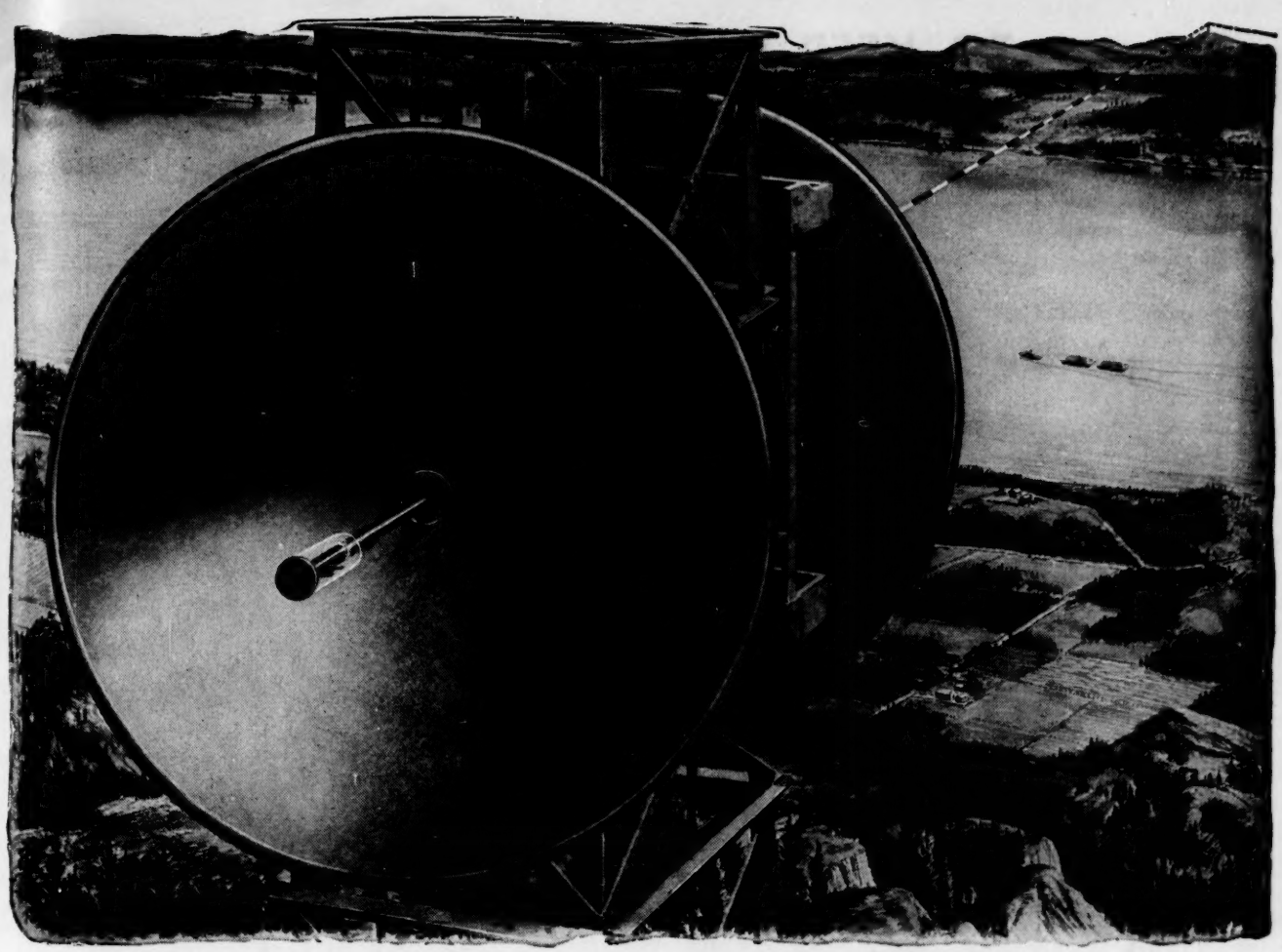
Even to retire on twenty, I have about ten years to go. But as I hope to stay on active duty until I have completed thirty years, I have nothing to look forward to—no promotions or advances in pay during the next ten years.

Again I repeat, "What have the 'Old Timers' over forty-five years of age to look forward to?"

G. W. STEIL
MSgt, USMC

Santa Ana, Calif.

ED: *Conditions do not remain static. Before World War II, when first sergeants were in the second pay grade, we knew one with over twenty years service who despaired of becoming a sergeant major. At that time his favorite comment was, "I'm just like the Major General Commandant—neither one of us will ever go any higher." Within a year the MGC was promoted to lieutenant general and the first sergeant made sergeant major. The Commandant eventually retired as a four-star general and the old first sergeant went out as a captain. It's hard to tell to what glorious heights "Old Timers" over forty-five may rise.*



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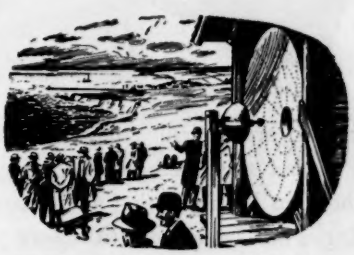

IT&T engineers successfully demonstrate first voice transmission by microwave, Calais to Dover, March 31, 1931.

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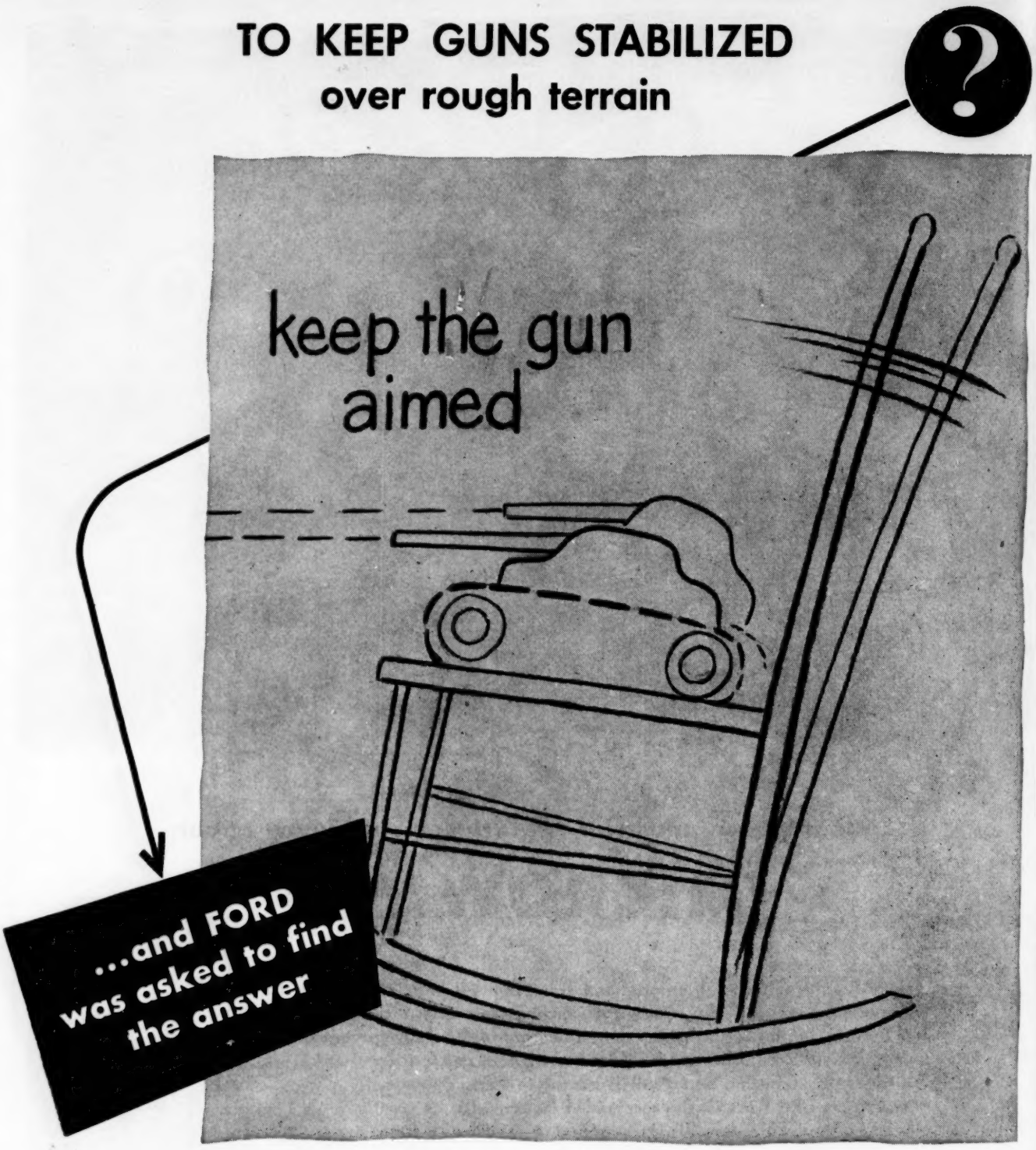

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our authors

Writing with a background of a degree in journalism from Indiana University and eleven years in the Marine Corps (most of it with rifle companies) **Captain Verle E. Ludwig** approaches a problem very dear to the footsloggers' hearts in *Repack Your Troubles* (page 24).

CAPT LUDWIG

After being commissioned in 1944, Capt Ludwig joined the 7th Marines at Pavuvu and then commanded a rifle platoon through the Okinawa campaign. From Okinawa he went to North China with the 1st Marine Division, then returned to the U. S. in 1946 and was separated.

Recalled to active duty in March, 1951, he was assigned to the Junior Course at Quantico and since then has been in the 3d Brigade and the 3d Division at Camp Pendleton.

He departs the United States this month and heads for duty in Korea with the 1st Marine Division.

From fighting for hills in Korea we switch to a problem at home which has been the basis for front page newspaper stories for some time. **MSgt Richard A. Brasier,** in his capacity as legal chief at Camp Lejeune, has been giving some serious thought to the problem and in, as he puts it, "my first try at writing anything," he presents *Tell 'Em What It Costs* — a practical dollars-and-cents method of bringing the cost of unauthorized absence home to the men.

MSGT BRASIER

MSgt Brasier, who has been in the Marine Corps since 1939, is a graduate of the First Sergeants' School, the Infantry Leaders Instructors' School, and the Naval School of Justice, Newport, Rhode Island.

In *Fox Hill* (page 16) **Captain R. C. McCarthy** goes back to an earlier stage of the Korean conflict and relates the saga of Fox Company and its bloody defense of a hill in North Korea.

CAPT McCARTHY

Prologue for Capt McCarthy's career as an officer in the Marine Corps began with his enlistment in the corps a year before the outbreak of World War II. Prior to his enlistment he had attended Oklahoma A & M.

He was commissioned in time to wind up on Okinawa, and after the war he hit Camp Pendleton twice. Sandwiched in between duty at Oceanside was a tour with the I & I staff of the 17th Infantry Battalion at Detroit, Michigan.

Ordered to TTU Pacific in June of 1950 he was close at hand when trouble started in Korea. He is now serving as executive officer of the Marine Barracks, Moffett Field, Calif.

The name of **LtCol John J. Wade, Jr,** author of *Ripple and Run* (page 32) should be familiar to all of our regular readers. LtCol Wade wrote *The Sunday Punch,* published in the October 1952 issue, and half-a-dozen other articles published in previous issues. He is presently on duty with the Ordnance Branch, G-4, HQMC.

In *They Know the Score* (page 36) **Captain Robert H. Piehl,** a supervising examiner for the Testing and Educational Unit, Marine Corps Schools, gives the blueprint of testing and evaluating used in the T & E center.

CAPT PIEHL

Capt Piehl enlisted in the Marine Corps in 1940. A tour of sea duty aboard the USS *Idaho* and the USS *New Mexico* followed and proved to be a stepping stone to his entrance to the Naval Academy.

Since Annapolis he has been with a tank battalion in Japan and Camp Lejeune, in a tracked vehicle battalion at Camp Pendleton, and with the 1st Armored Amphibs in Korea.

Captain Patrick C. Roe writes on the need for help in obtaining parts to fit into the big picture in *See It—Report It* (page 40).

Experience gained as an S-2 officer with the 7th Marines during the Inchon, Seoul, and Uijongbu operations in Korea provided the source material for his article on combat intelligence.

CAPT ROE

Capt Roe enlisted in the Marine Corps in 1945 and he was commissioned in 1948. He has attended the Electronics Materiel School (elementary and advanced), and the Officers' Intelligence Course at Ft. Riley.

Now an instructor in the tactics section of the Junior School at Quantico, the captain holds the Bronze Star and the Letter of Commendation, both with a Combat "V."

Most re-hashing of the fight for Iwo Jima centers around Mount Suribachi and the flag raising. For the anniversary of the operation we present a new facet of the fight written by **Major Fred E. Haynes, Jr.**—*Left Flank at Iwo* (page 48).

Maj Haynes did both his undergraduate and graduate work at Southern Methodist University before he entered the Corps in March 1942. Since that time he has served at the Marine Corps Schools as S-3 officer with the 28th Marines, and later in the same capacity with two different battalions of the 6th Marines in Japan.

From 1946 to 1949 the major was Asst G-2, Division of Plans and Policies, HQMC, and then went to the University of Texas as an instructor. In June 1952 he was ordered to Quantico where he served as S-3 of the 2d Training Bn. At the present time he is attending the 4th Special Junior Course at Quantico. USMC

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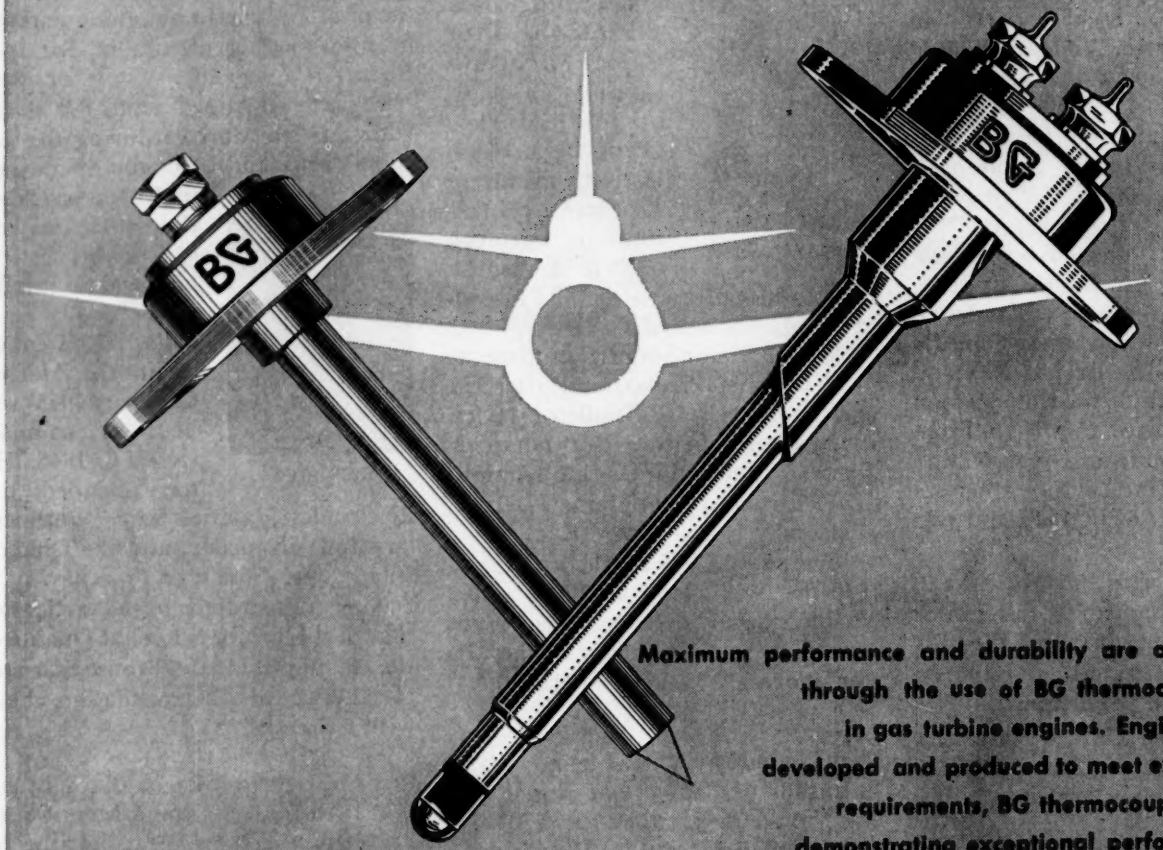

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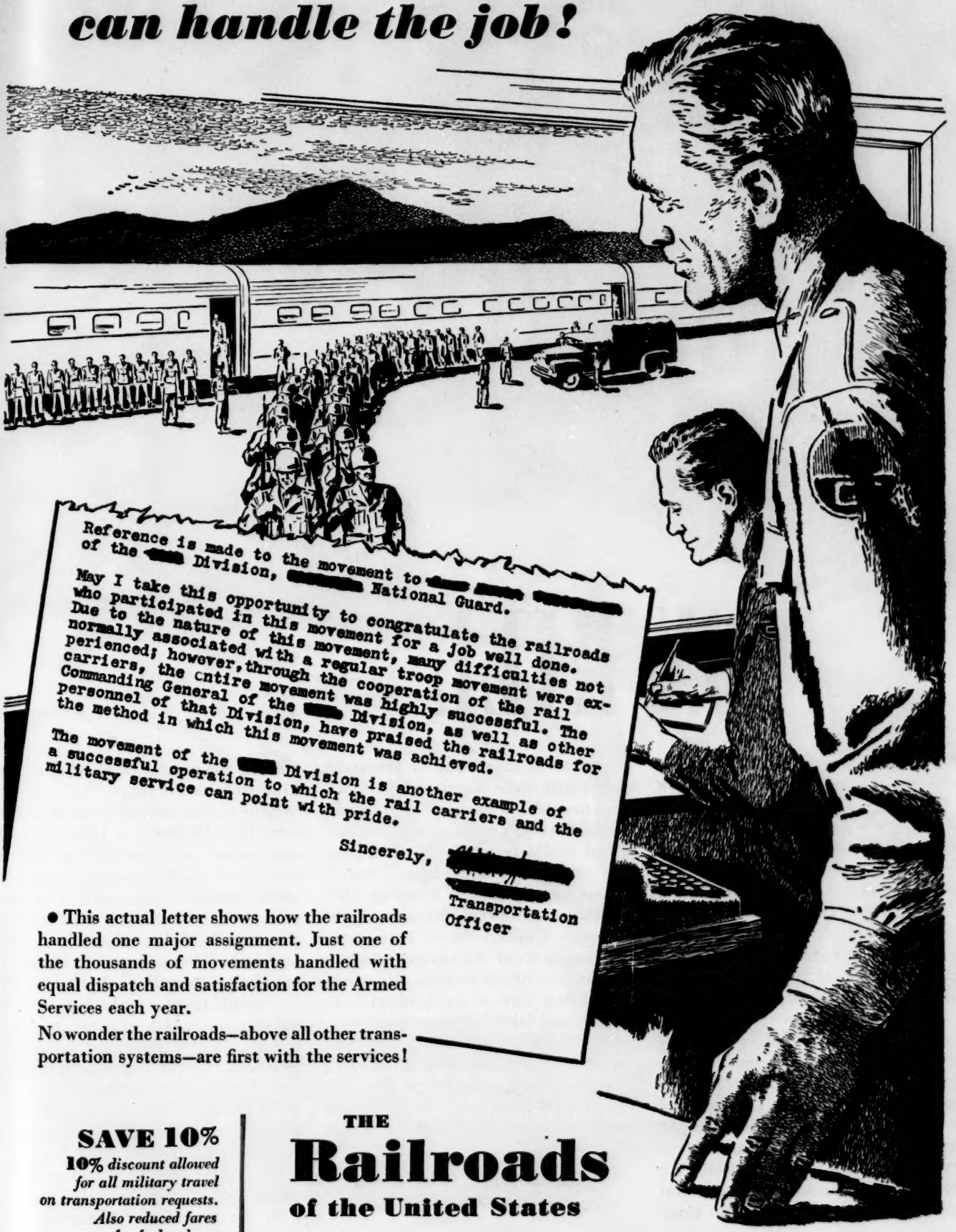

Reference is made to the movement to [redacted]
of the [redacted] Division, [redacted] National Guard.

May I take this opportunity to congratulate the railroads who participated in this movement for a job well done. Due to the nature of this movement, many difficulties not normally associated with a regular troop movement were experienced; however, through the cooperation of the rail carriers, the entire movement was highly successful. The Commanding General of the [redacted] Division, as well as other personnel of that Division, have praised the railroads for the method in which this movement was achieved.

The movement of the [redacted] Division is another example of a successful operation to which the rail carriers and the military service can point with pride.

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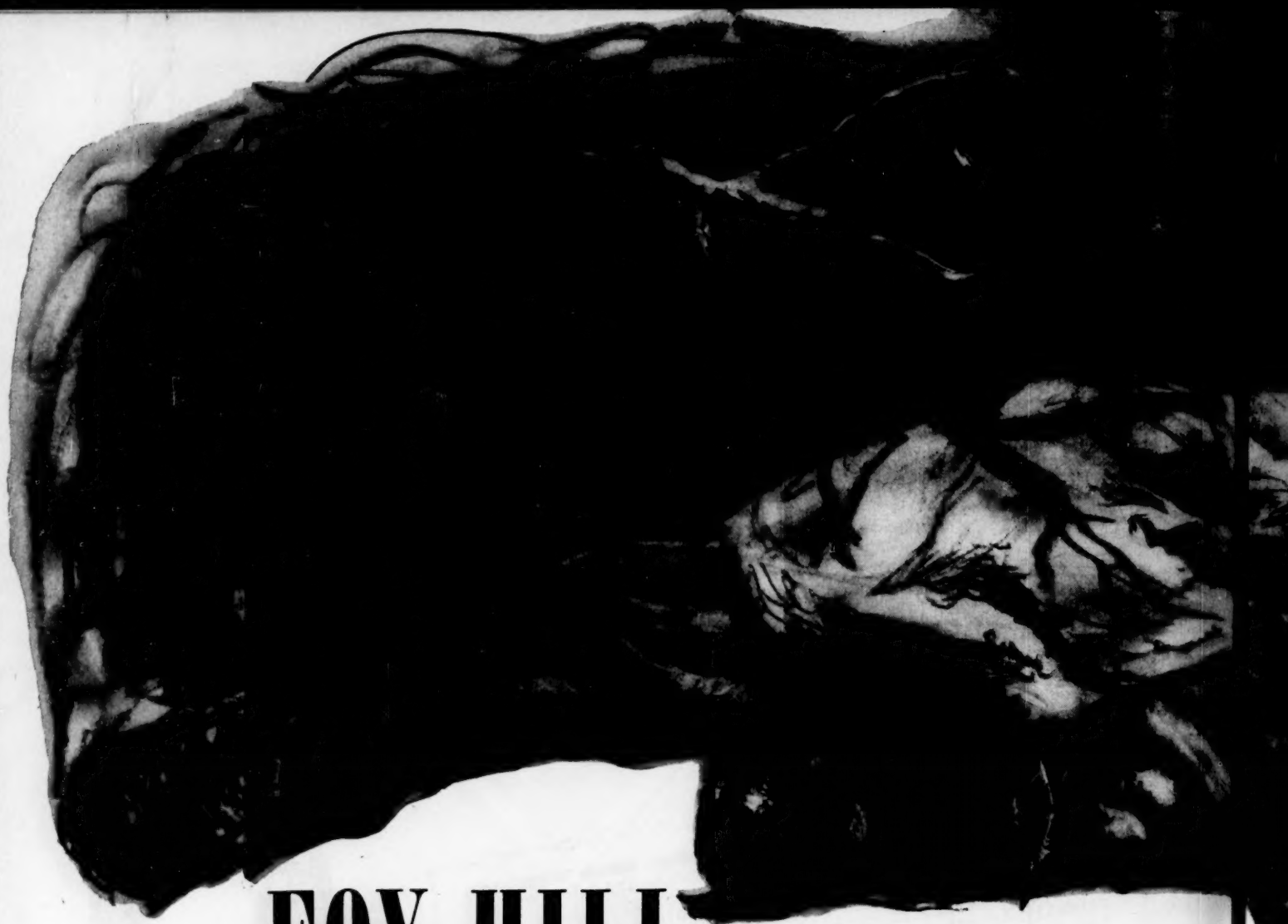


FOX HILL

THIS IS MY ACCOUNT OF TWO hundred and forty Marines and how they withstood the attack of a Chinese Communist regiment for five days during the Chosin Reservoir campaign in North Korea.

Fox Company, 2d Battalion, 7th Marines, was relieved west of the airstrip at Hagaru-ri by How and Item Companies, 3d Battalion, 1st Marines, on the morning of 27 November 1950. Fox Company was to set up a defensive position on the right of Item Company, 1st Marines. Fox Company arrived in the newly assigned defensive area about 1000, 27 November and started to prepare the area.

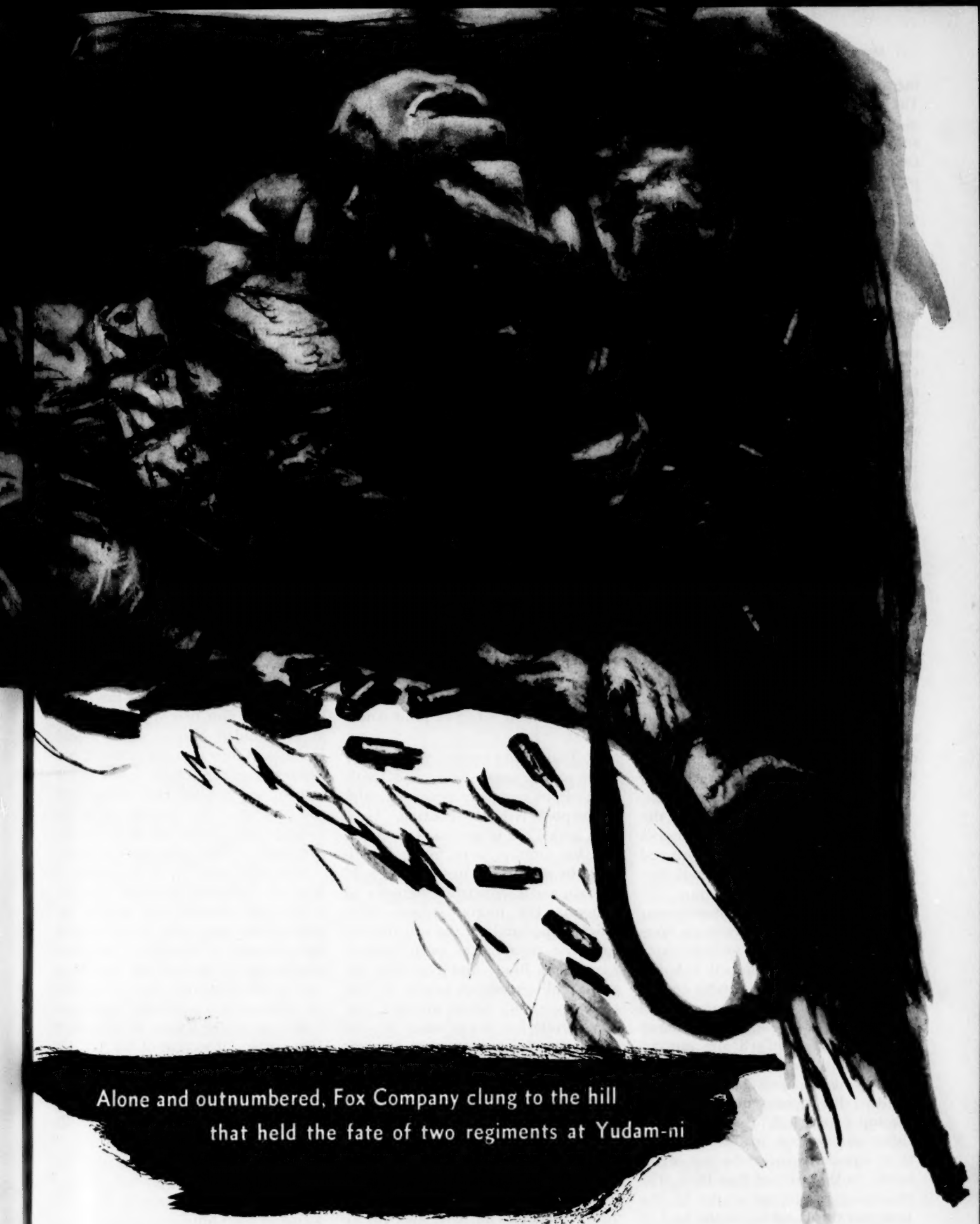
At 1130, the company commander, Captain William E. Barber, received orders from the 2d Battalion, 7th Marines, commanded by Lieutenant Colonel Lockwood, that Fox Company was to move out of Hagaru-ri to a point some seven miles up the road toward Yudam-ni. The company would have to march, as no transportation would be available. The prospect of a seven-mile, up-hill march departing at the late hour of 1500 caused some concern throughout the company. Captain Barber tried to obtain trucks from the various units in Hagaru-ri without success. All trucks were being used to carry supplies to the 5th and 7th Marines at Yudam-ni. At 1300, Lieutenant Campbell, How Battery forward observer attached to Fox Company, brought in the welcome word that the battery commander, Captain Benjamin Read, was sending the battery trucks over to Fox Company for the move.

Nine trucks arrived from How Battery, 11th Marines, at 1430 and each was loaded with twenty-five Marines with their packs, sleeping bags, and other essential equipment. The company would now arrive on its objective much earlier than if it had marched. The convoy left Hagaru-ri at 1500, proceeding slowly up the Yudam-ni road; slowly because the 4th Battalion, 11th Marines, was towing its 155mm howitzers by tractor just ahead of the Fox Company convoy. The move was uneventful and the company to the defensive position seven and one-tenth miles northwest of Hagaru-ri, at 1700, 27 November.

Captain Barber, who had preceded the company to the defensive position with the battalion commander, met

By Capt R. C. McCarthy

ILLUSTRATED BY PFC TONY KOKINOS



Alone and outnumbered, Fox Company clung to the hill
that held the fate of two regiments at Yudam-ni

the company as it was detrucking. The captain made his reconnaissance of the area with the platoon leaders and issued the company order. Fox Company was to set up a defensive perimenter as security for the main supply route, and was to remain in the position for some five days. Patrols would be sent out during the daylight hours as guards for the main supply route.

The hill that Fox Company was to organize for defense rose sharply from the road, its lower half covered with small trees, the upper half barren except for some low brush at the summit. North from the high point of the hill, a saddle extended some 900 yards to a ridge running in an arc from the northwest to the east of Fox Hill. Only on the northwest portion, which was very rocky, was the elevation higher than Fox Hill. The saddle extending to the north fell away sharply on both its east and west slopes. Except for the narrow top of the saddle, Fox Hill was well separated from the other high ground in the area.

Captain Barber assigned 1stLt McCarthy's 3d Platoon to the top of the hill with 1stLt Dunn's 1st Platoon on the right, and 1stLt Peterson's 2d Platoon on the left. The 1st Platoon and the 2d Platoon extended down the hill with the interval between them being closed by the 3.5-inch rocket section and the headquarters section. The company command post, the 81mm mortars, and Lt Joe Brady's 60mm mortars were located in and near two houses at the base of Fox Hill.

It was dark before the company was completely dug in; no warm-up tents were raised because the foxholes came first. Lieutenant Campbell was not able to register How Battery in the areas around Fox Hill because of the heavy truck traffic on the Yudam-ni road, but Sgt Kohl's 81mm mortars were able to register on the rocky ridge to the left front. The 3d Platoon had two rifle squads emplaced around the top of the hill; also a light machine gun section was set up with these squads to cover the top of the saddle to the front of Fox Hill. The remaining rifle squad of the 3d Platoon was emplaced across the back of the other two squads, tied in with both flank platoons as were the forward squads. The 1st and 2d Platoons were one thin line extending down the hill, each having a section of light machine guns attached. Staff Sergeant Robicheau's heavy machine gun section was assigned a position well down the hill in the 1st Platoon's area, from which the guns could cover the Yudam-ni road from either direction. By 2100 Fox Company had settled down in its sleeping bags, with no prospect of getting into warm-up tents. A full moon rose at about 2300 and the night was clear, bright, and miserably cold. Half of the company was alert, if that is possible in weather well below zero. Except for the traffic on the road, all was quiet.

At 0115, 28 November, I inspected the 3d Platoon's positions and was not satisfied with the alertness of the men who were supposed to be on watch. I got the squad leaders and the machine gun section leader together and informed them of the laxity of the watch. When I inspected the platoon area again, challenges were loud—perhaps a bit angry. At 0155 I crawled into my sleeping bag after giving the phone to Corporal Ashdale, the 1st squad leader, instructing him to awaken Platoon Sergeant John Audis at 0400.

At 0230, I was awakened by heavy firing to the north, west, and south sides of the company perimeter, and by Corporal Ashdale shouting, "Here they come!" Lieutenant Joe Brady and his mortars were hit at practically the same moment as were my 3d Platoon and Lieutenant Peterson's 2d Platoon. The mortar sections were quickly displaced up the hill just beyond the trees in the open ground. Lieutenant Brady and Gunnery Sergeant Phillips, 60mm mortar section chief, were both hit by grenade fragments in the first five minutes. Several others of the mortar sections were wounded and two were killed. The company command post displaced up the hill to a point just inside the trees and below the mortars. PFC O'Leary was now directing the fire of the two remaining 60mm mortars. The 81mm mortars were not in action as yet.

The 3d Platoon was under extremely heavy attack. The front two squads and the machine gun section of the platoon were overwhelmed by sheer force of numbers. Of the thirty-five Marines in these units, fifteen were killed, nine were wounded, three were missing, and only eight were still effective. One gunner stood up after his gun had jammed and shot six Chinese with his pistol. These units were withdrawn to the area of the 1st squad, across the rear of the 3d Platoon's area. The left and center fire teams of Corporal Ashdale's 1st squad were now heavily engaged. Grenade and small arms fire was intense. The whole hilltop was alive with grenades, both ours and Chinese. PFC Pommers had three grenades explode in his foxhole and a fourth on the top of his helmet, the latter knocking him out. When he regained consciousness he continued to direct his fire team. PFC Smith's fire team was having a bitter contest on the platoon's left. Two men from the 2d Platoon joined this fire team when their fire team leader and BAR man were killed. One of these Marines, Pvt Cafferata, was directly responsible for stopping what might have been a breakthrough just to the left of the 3d Platoon.

Cafferata stood up, completely exposing himself to the heavy fire of the enemy, and shot two M-1 rifles as fast as a wounded Marine could reload for him. Cafferata also grabbed one Chinese grenade, threw it out of the trench, and pushed two others from the parapet. This man was cited for killing twenty Chinese. PFC Smith's fire team killed some sixty Chinese. There were forty-five dead Chinese in front of Pommers' fire team.

The 2d Platoon was heavily engaged along most of its front, particularly higher up the hill. The light machine gun crew and two Marines of the fire team between the gun and the 3d Platoon were killed. Lieutenant Peterson, while trying to reorganize that particular section of his line, was shot through the shoulder. After receiving first aid, the lieutenant returned to his platoon and fought the remainder of the night. The 2d Platoon had pulled the lower portion of its line up into the trees about fifteen yards above a ten-foot bank that ran along the lower portion of Fox Hill, tieing in with headquarters section.

This line, just above the bank from the 2d Platoon's area, through the headquarters and 3.5-inch rocket sections, and into the 1st Platoon's area, held fast. Grenades tossed over the bank by the Marines forced the Chinese to either come up over the bank or to attempt to withdraw across the road and the valley. In either case the Chinese were cut to pieces by the heavy machine guns in the 1st Platoon's area.

The east side of Fox Hill, where 1stLt Dunn's platoon was in position, was not attacked heavily along its front. However, both of the 1st Platoon's flank squads were heavily engaged where they joined the adjacent units near the top of the hill, as well as at the base of the hill.

Captain Barber made continuous inspections of the company perimeter all during the attack. He was exposed to murderous small arms fire, two company runners being wounded while accompanying him. Captain Barber had directed PFC O'Leary to fire his 60mm mortars on the top of the saddle and down its west slope, with excellent effect.

AT DAYBREAK, in the direction of Hagaru-ri, we saw several flights of planes. We were not sure where they were going but we hoped they were coming to our assistance. As they flew closer to our positions we could see they were our own gull-winged Marine Corsairs. As the drone of their motors swelled in volume the men of the 3d Platoon started to cheer. The Chinese must have thought we were going to attack because for a quarter of an hour they ceased firing completely. The planes flew on towards Yudam-ni, but the very sight of them had given our morale a considerable boost.

By 0630, 28 November, the Chinese had received so many casualties that the attack could no longer be considered organized. Few Chinese remained alive near the company perimeter. Individual Chinese continued to crawl up and throw grenades. A Marine would make a one-man assault on these individuals, shooting or bayoneting them. The company ammunition supply was becoming dangerously low and grenades were practically non-existent. The mortars had less than ten rounds of ammunition; however, by this time the only enemy troops in the area were trying to withdraw. The attack could be considered over, although three Marines, one being Pvt Cafferata, were hit by rifle fire at 0730. We received small arms fire intermittently during the day, but no attack.

By 1000, 28 November, the weapons and ammunition had been collected from the Chinese dead as well as from our own casualties. There were about three hundred and fifty Chinese dead in front of the 2d and 3d Platoons. In the 1st Platoon's area and at the bottom of the hill there were about

one hundred dead Chinese. Fox Company had twenty Marines killed, fifty-four wounded, and three missing in action.

Captain Barber had requested an air-strike on the rocky ridge to the northwest of Fox Hill. At 1030 eight P-51 Mustangs arrived on station. We were a bit surprised to have someone other than Marine pilots coming to our assistance. The captain called to Hagaru-ri via SCR-300 radio, as we had no radio capable of direct contact with the planes, and the Hagaru-ri station directed the planes to make the strike. The P-51s were from an Australian squadron and they turned out to be a red hot outfit. When they made their runs on the rocky ridge several of them would pass Fox Hill much lower than the top of the hill. They bombed and rocketed the ridge very effectively. Then they strafed the valley along the Yudam-ni road. Some of the Aussie pilots appeared to be low enough to chop kindling wood with their propellers. After the air-strike there was very little Chinese activity.

The corpsmen, with the assistance of Gunnery Sergeant Bunch and a detail of Marines, set up two tents in the trees as an aid station. With nothing but morphine and field bandages the corpsmen tended the wounded. The corpsmen of Fox Company were to work day and night keeping our wounded alive. By candlelight they changed the bandages, slipped men in and out of sleeping bags, warmed C-rations for the men, and melted the morphine syrettes in their mouths before the injections. Because the plasma was frozen the corpsmen had to watch men die for the lack of it.

THE 1ST PLATOON sent out a patrol of one squad to the high ground to the east of Fox Hill. The patrol received some sniper fire, but had no casualties. Lt Campbell registered How Battery in on the area around Fox Hill and fired harassing fire all during the day. Many of the Chinese weapons were cleaned and were made available for use in the event of another attack. It seemed that every other Marine had liberated one of our Thompson submachine guns from the Chinese. Our old '03 Springfield rifles were also in good supply and most everyone had one, along with his own M-1 rifle.

On the afternoon of 28 November, Marine transport planes (R5Ds) arrived and started dropping medical supplies and ammunition into the area near the two houses at the base of Fox Hill. The drop was excellent; just where we had called for it. The supplies were not scattered. Sergeant Smith, company supply sergeant, started at once to collect the supplies. He had just cut the first bundle loose from a parachute when a sniper shot him, breaking his leg. 1stLt Schmidt left his foxhole and attempted to rescue Sgt Smith; another shot rang out and the lieutenant had a broken leg. Lieutenant Dunn sent a fire team out after the sniper and this danger was quickly eliminated. 1stLt C. B. Wright, company executive officer, with the aid of Staff Sergeant Watson and a detail of Marines quickly re-

covered all of the supplies.

At sundown on 28 November the company perimeter was about the same as on 27 November except for the 3d Platoon's area. The 3d Platoon, having twenty-two men effective, extended in one line across the top of the hill instead of two squads up and one back. Lt Campbell called in harassing fires from How Battery all during the night. PFC O'Leary, under Captain Barber's direction, harassed the rocky ridge to the left front with the 81mm mortars. The 60mm mortars were registered on the saddle to the north of Fox Hill. Half of the company was on the alert.

A few mortar rounds landed in the company area at about 0215, 29 November. One round wounded two Marines and killed another in the 3d Platoon area. One of the wounded was Corporal Ashdale, squad leader of the 1st squad. Another round landed close to the 2d Platoon but caused no casualties. PFC O'Leary opened up with his 60mm mortars on the saddle and with the 81mm mortars on the rocky ridge. (He was now in command of both mortar sections.) How Battery was firing into the valley at the bottom of the hill and to the west of the hill.

THE 3D PLATOON was attacked lightly on its front and was cut off by heavy attacks when the Chinese struck the platoons on either flank just to the rear of the 3d Platoon's area. About forty Chinese were in the 2d Platoon's area. The Chinese were bunched up, chattering, and blowing their bugles. One of the light machine guns in the 3d Platoon's area was turned about and heavy fire was brought to bear on the Chinese with deadly effect. Lt Peterson also brought fire to bear on them from the 2d Platoon, and most of the Chinese were killed. The right of the 3d Platoon's line was shifted slightly to face the Chinese on the right flank and was able to contain them. With a gap in the lines on both flanks, the 3d Platoon withdrew about twenty yards. PFC Richard Bonelli, manning one of the platoon's light machine guns, carried gun, tripod, and belts of ammunition from firing position to firing position all alone. I was trying to contact the 1st Platoon on the right, just after the captain had arrived to see how the situation was, when both the captain and I were hit in the legs by a burst of fire from the right front. Platoon Sergeant John Audis assumed command of the 3d Platoon.

The 2d Platoon, after the initial attack and after the line was restored, maintained contact with the 3d Platoon. The 2d Platoon was engaged along its entire front but was able to keep the Chinese at a distance with the assistance of How Battery's fire. Lt Peterson while moving along his platoon's front was hit for the second time. After receiving first aid he again returned to his platoon.

THE 1ST PLATOON was under light attack and the Chinese made no real effort to close on the platoon's positions, except near the top of the hill where they had created a gap in our lines. One of the light machine guns of the 1st Platoon caught a Chinese squad all bunched up and made short work of it.

At sun-up, Platoon Sergeant Audis led the 3d Platoon in an attack and reoccupied its original position on the crest of Fox Hill. Chinese opposition was not heavy and only two Marines were wounded. One was PFC Pommers who had withstood the grenades in his foxhole the night before. Although Pommers was seriously wounded in the neck he remained with his fire team until the platoon's position was secured.

This second night cost the company five dead and twenty-nine wounded, one of the wounded being Captain Barber. The Chinese lost about 150 dead and many were wounded. Their cries rang out until the extreme cold silenced them. Though the attack could be considered over by 0600, there was very heavy and effective sniper fire until about 1000, 29 November.

Captain Barber had the open portion of Fox Hill circled with the colored parachutes from the previous air-drop. All the company's air panels were used to make a large "X" in the circle of parachutes. At 1030 the Marine transport planes arrived and started dropping supplies on the large "X." The drop was excellent and recovery was not difficult.

Shortly after the air-drop a helicopter landed with batteries for the SCR-300 and 619 radios. The helicopter received long range small arms fire immediately. One round passed through the cockpit just missing the pilot and several other rounds hit the fuselage. Before any wounded could be placed aboard, the pilot had to take off to save the helicopter from further damage.

During the afternoon of 29 November, Flying Boxcars (C-82s) arrived to make a second air-drop. They were requested to drop on the large "X" near the top of Fox Hill. The drop was not as accurate as it had been during the morning; some of the ammunition landed five or six hundred yards to the west of the company perimeter, in front of the 2d Platoon's positions. Lt Peterson, already wounded twice, took charge of a detail of Marines from the 1st Platoon and went out to recover the ammunition. They had cut the bundles loose from some of the parachutes and started back to the company perimeter. Suddenly they received heavy fire from the rocky ridge and were pinned down.

CAPTAIN BARBER immediately ordered PFC O'Leary to fire the 81mm mortars on the ridge. The 3d Platoon also brought heavy fire to bear on the Chinese positions. Under this heavy covering fire, Lt Peterson started the men back individually. Lt Brady, who had been hit in the hand the first night, had gone out with the detail. He had two rounds of 81mm mortar ammunition under his good arm. As he ran from cover it looked like he was carrying the ball for Dartmouth again. He managed to stay one jump ahead of the Chinese bullets all the way across the two hundred yards of open ground to the company perimeter. All the other Marines made it safely back to the perimeter; however, most of the ammunition was still outside the company area. The volume of fire from the Chinese positions on the rocky ridge was too heavy to permit venturing out into the open. Therefore it was decided to wait until dusk before making further attempts to recover the ammunition.

Blankets and stretchers were now available in sufficient quantity to get all the seriously wounded off the frozen ground and well covered. C-rations had also been recovered from the air-drops and were issued to the entire company. The gunnery sergeant, who was now wounded in the hand, got a fire going and made enough hot coffee for all hands. The men who were lightly wounded all returned to the lines and those that could move about helped the corpsmen with the badly wounded, heating rations and passing out water and hot coffee.

The 1st Platoon sent out a patrol to the south and east of Fox Hill to eliminate sniper fire. The patrol killed two Chinese and saw three others run away. No Marines were injured during the time the patrol was out.

At about 1700 on 29 November, Captain Barber called all the platoon leaders together and informed them that other Marine units were under heavy attack and not to expect relief that night; in fact he told them to be prepared for even heavier attacks. There were no complaints. Some of the wounded asked for grenades or a rifle. Booby traps and trip flares had been placed around the company perimeter during the afternoon and the foxholes had been dug deeper.

At dusk, Lt Wright assembled one squad of the 1st Platoon just to the rear of the 2d Platoon's lines to give them instructions prior to another attempt to recover the remainder of the ammunition that had been air-dropped outside the company area during the afternoon. The entire company was notified that the men were going out to retrieve the ammunition. The members of the detail were instructed that all talking would cease as they passed through the 2d Platoon's lines. They were to proceed quietly to the parachutes, cut the bundles of ammunition loose, and return individually to the perimeter. If fired upon they were to "hit the deck" and remain still; if it was only a sniper firing they were to continue to the ammunition. However, if the fire became heavy they were to return at once to the perimeter. Why? Because the men went out without their weapons so they would have two hands free for the ammunition.

Captain Barber directed PFC O'Leary to fire the 81mm mortars slowly on the rocky ridge. Lt Campbell was directing the fire of How Battery to the west of where the ammunition lay. There was no other firing in the company area as the men departed. The artillery and mortar fire apparently kept the Chinese in their holes as the ammunition detail received no fire. Each Marine had to make two trips before all the ammunition was recovered. Most of it was for the 60mm mortars, some of it was illumination shells for the 81mm mortars, and there were six cases of fragmentation grenades.

Hand grenades and mortar ammunition were now plentiful for the first time since the company had been attacked. Machine gun positions were heavily supplied with ammunition, and every rifleman had three bandoleers, with more nearby. For the third night Fox Company awaited the Chinese attack; but this night was going to be different. Illumination shells would change night into day.

At about 0200 on 30 November, a voice near the road called out in English stating, "Fox Company, you are surrounded. I am a lieutenant from the 11th Marines. The Chinese will give you warm clothes and good treatment. Surrender now." One of our Marines yelled, "Send up a flare so I can talk to the — — —." O'Leary's mortars fired the illumination and the machine guns opened up.

At 0230 the Chinese attacked across the valley from the south with fixed bayonets and satchel charges. They were firing very little. The heavy machine guns, under Staff Sergeant Robicheau, and one of the 2d Platoon's light machine guns had a turkey shoot. O'Leary and his mortars turned night into day and then blew the Chinese to pieces with high explosive shells. Staff Sergeant Watson, of headquarters section, could be heard all over the hill calling adjustments for the mortars. Lt Campbell brought in How Battery with time (overhead) fire. The riflemen at the base of the hill were holding a rifle match and Chinese were being slaughtered. Those who escaped the terrific fire of the company and reached the shelter of the bank at the foot of Fox Hill, were cut to pieces by grenades that burst just over their heads. At least three Chinese companies started this attack; few if any got out of the valley alive. One Marine was slightly wounded. He didn't bother to check in for first aid.

The Chinese did not attack the company in any other area during the night.

As the sun came up the tension that had been in the company the night before was gone. The men joked

about not getting their rifles hot enough to warm their hands in the last attack. The large number of Chinese dead in the area indicated that there probably was not enough left of a regiment to worry about. First Sergeant Dana got the coffee going and most of the men were able to heat their C-rations. Everyone agreed that if the Chinese Communists couldn't take us in three days they were never going to take us.

ONE OF THE MARINES on watch on the heavy machine guns saw two Chinese walking up the road from the southeast. Both had on fedora hats. They appeared unconcerned about the company on the hill and the machine gunner let them walk to within twenty yards of his position. Then he yelled, "Halt." The Chinese foolishly reached for their pistols and the Chinese Communist Forces lost two officers. The gunner was very unhappy because one of the hats had a hole in it. However, the other one was in good shape and he wore it on the top of his parka.

Captain Barber had requested an air-strike on the rocky ridge and the planes arrived at about 0930. They were Marine F4Us. We identified the planes as the Checkerboard Squadron by the alternating black and white squares painted on the engine cowlings. They orbited on station while their flight leader made passes at the rocky ridge until he received Captain Barber's approval for the attack. Then they came out of their orbit at about a thousand feet and dived on the ridge, the first plane strafing and firing rockets, the second slamming the ridge with a 500-pound bomb, the third burning it with napalm. Then it started all over again with the next three. Around and around went the planes and the air was split by the "whoosh" of the rockets. The 500-pound bombs shook the whole area, and the rocky ridge was a mass of flames from the napalm. A little OY (observation) plane was flying slowly over the valley to the west and apparently spotted some Chinese. The Checkerboards now ripped the valley and the ridge to the south of Fox Hill. There was no Chinese activity at all in the area now, unless it was directed at digging deeper holes. Just before the Checkerboards pulled out they flew in circles around Fox Hill, wagging their wings and waving. Fox Company was standing to a man, everybody waving and cheering himself hoarse. By 1100, Fox Company was again alone.

We had received word that the air-drop was to arrive shortly after noon and that a helicopter would bring batteries for the radios. The helicopter arrived at about 1430. Again it received heavy small arms fire, and was forced to take off immediately after leaving the batteries. The volume of fire indicated the Chinese had recovered from the morning's air-strike.

The air-drop had not arrived by 1700 and darkness was fast approaching. Though we still had considerable amunition it was not enough to ward off a big attack. Just at twilight the transport planes arrived, and we were advised to turn on flashlights so the pilot could locate us. After he spotted us he made the first pass which was good; but on the second pass, when he was to drop supplies, he became confused in the darkness and dropped too soon. Some of the supplies landed about 800 yards to the east of the perimeter in front of the 1st Platoon. Again Lt Wright sent men from the 1st Platoon to recover the supplies. The Chinese could not fire on the men while they were retrieving the supplies because Fox Hill was between the supplies and the rocky ridge. Except for the darkness and the distance, little difficulty was experienced in recovering all of the supplies. The amount of ammunition on hand was certainly sufficient now.

Some four inches of snow fell before midnight on 30 November, and it was extremely cold. Captain Barber inspected the perimeter as he had every night, though by this time he could not arise without assistance and was in continuous pain from the wound in his leg. There was no organized Chinese attack, but sniper fire was heavy.

At 0100 on 1 December, four Chinese machine guns opened fire on the company perimeter from the rocky ridge. It was not effective but Captain Barber decided to answer decisively. Lt Campbell was instructed to make arrangements with How Battery to deliver fire on the ridge; PFC O'Leary was to be prepared to fire illumination from the 81mm mortars, in coordination with How Battery's fire, so that it would be easier to adjust the artillery. Sergeant Pitts of the 3d Platoon was to make the adjustments for the battery. How Battery reported, "Four guns on your command." O'Leary had his mortars laid on the ridge; Sergeant Pitts had his glasses on the rocky ridge. Lt Campbell gave the command, "Fire." How Battery reported, "Four rounds on the way." Captain Barber ordered O'Leary to fire the illumination. The first two rounds of 81mm illumination burst just as the artillery shells landed. O'Leary had fired six illumination shells altogether and the rocky ridge was completely lit up. Sergeant Pitts' enthusiasm got the best of him. When Captain Barber asked him over the phone what adjustments were needed, all the captain heard was, "Wonderful, lovely, beautiful." Finally the captain shook Pitts out of his reverie by shouting over the phone, "What about those machine guns?" Pitts said, "Oh, they are gone; beautiful shooting." Pitts had actually seen the guns and crews blown into the air by the first four rounds from a battery seven miles away. That was real good shooting even for How Battery. When Lt Campbell called in, "Cease fire, target destroyed, mission completed," How Battery called back, "Say again all after cease fire." Lt Campbell said, "Target destroyed, mission completed." The battery just couldn't believe it; neither could we. A 105mm howitzer battery just doesn't hit a target at a range of seven miles with its first salvo, but How Battery did that night.

December 1st was spent in cleaning up the company area. All C-ration cans and other trash were placed in a foxhole and covered up. The equipment of our casualties was placed in a central area just to the rear of headquarters section.

At 1030 Marine Corsairs arrived on station and orbited until receiving the all clear for attack from Captain Barber. These planes apparently were trying to out-do the Checkerboard Squadron. As they dove on the rocky

ridge you could see a big white LD on their tails, which was their call sign and identified them as the Love Dog Squadron. On their strafing runs they were so low they actually had to pull up to clear the rocky ridge. After all eight planes strafed the ridge, they came in a little higher and shook the place up with rockets and bombs. As the last of the eight was pulling out of its bombing run the first plane was diving in again. This time it was napalm, and for the second time the rocky ridge was a mass of flames.

We received word our air-drop was on the way and the air-strike was called off temporarily. The Flying Boxcars came in and hit the big "X" on Fox Hill with most of the drop. A small portion landed out in front of the 1st Platoon. After the air-drop was completed Captain Barber requested the Love Dog planes to strafe the ridgeline to the south and east of Fox Hill. They complied with a vengeance. While they were doing this the supplies were all recovered and brought into the perimeter.

The rocky ridge again received the attention of the Marine Corsairs. They launched the rest of their rockets and napalm upon it. After they had expended all their ammunition they dipped their wings and were off for home.

THE 1ST PLATOON sent a patrol out to the ridge to the north of Fox Hill, and as they started to move toward the rocky ridge they received fire from the Chinese who had again recovered from the air-strike. The Chinese fire began to take effect and the 81mm mortars and the 3d Platoon's fire could not keep them pinned down. Lt Wright, who had been directing the 3d Platoon's fire, was hit twice in the side. The 1st Platoon's patrol withdrew, bringing their wounded and dead with them. The patrol reported there were about fifty Chinese well dug-in on the ridge, and that several cave openings could be seen among the rocks. Apparently these caves gave the Chinese adequate shelter from the air-strikes. One Marine was killed and four others were injured during this patrol action.

The Chinese action during the night of 1 December was very light

and as the sun came up on 2 December the whole company was boasting with confidence that the Chinese wanted no more combat with Fox Company.

ON 2 DECEMBER all equipment was moved down the hill and all of our dead were moved to a point just behind the headquarters section. At noon the 1st Battalion, 7th Marines, commanded by LtCol Raymond G. Davis, was in radio contact with Fox Company. The company commander warned that the rocky ridge to our left front was still occupied by the enemy. At 1400 Fox Company sent out a patrol to keep the Chinese on the rocky ridge engaged. The rocky portion of the ridge was still held in such force that seizing it was impossible. However, the Chinese were diverted enough by the patrol to allow the 1st Battalion, 7th Marines to move in from the right and drive them out.

LtCol Davis and his battalion arrived at Fox Company's position at 1630, 2 December. They had come across the rugged country from Yudam-ni, fighting all the way. They brought their dead and wounded with them. Baker and Charlie Companies, 1st Battalion, 7th Marines, moved through Fox Company's area and set up defensive positions for the night on the high ground across the valley to the south. Headquarters Company and Able Company, 1st Battalion, 7th Marines, bedded down in Fox Company's area for the night. All the rations that Fox Company had were turned over to the 1st Battalion. The medical officer of the 1st Battalion stayed up all night caring for the wounded and advising the corpsmen about some of the more seriously wounded. Some of the Fox Company wounded told the doctor if he didn't get them to a hospital soon they would be healed up and ready for duty. There was no Chinese activity on the night of 2 December.

Just before the 1st Battalion moved out on 3 December its doctor was giving the corpsmen instructions. A sniper suddenly fired four rounds and the doctor and one corpsman were killed, and another corpsman was wounded.

The last elements of the 1st Battalion, 7th Marines, cleared Fox Company's area by 1000, 3 December. They had left their wounded and dead with Fox Company, because they were assigned the mission of clearing the left side of the road to Hagaru-ri.

At about 1230, a helicopter was approaching Fox Hill to land with medical supplies. Just as it started to settle down for a landing it was hit by small-arms fire. The helicopter appeared to make a partial loop and crashed into the center of the perimeter, killing the pilot.

ONE BATTALION of the 5th Marines was pushing the Chinese ahead of it on the south side of the Yudamni road. Lt Campbell called in some very accurate fire from How Battery which inflicted heavy casualties on the Chinese. The 3d Battalion, 5th Marines, preceded by an M-26 tank, arrived on the road at Fox Company's position at 1500, 3 December. This was the advance guard of the column of the 5th and 7th Marines. Instructions were received to burn excess equipment and to place the dead and wounded on the trucks.

Captain Barber supervised these final arrangements of his company, caused the company to fall in beside the road, and turned it over to 1stLt Peterson for the march to Hagaru-ri. Though Lt Peterson had been hit twice, he was the only officer left in Fox Company with two good legs so Fox Company was now his.

Fox Company was not engaged at any time between its old position on the hill and Hagaru-ri. The company arrived in Hagaru-ri at 0130, 4 December, from where it had started on 27 November with 240 Marines. It returned with 122 Marines still effective. Fox Company lost twenty-six Marines killed in action, eighty-nine had been wounded, including six of the seven officers, and three Marines were missing in action. USMC

The gravelcruncher deserves a break. Let's hold court on our present pack

Re-pack your troubles

Rucksack

Field transport pack

Packboard

PROBABLY THE AXIOM THAT AN army travels on its stomach has never been disputed. Military leaders have always held that hunger is an enemy —it kills morale and hampers movement.

But it is also true that troops need more than just a hot meal at the end of a day's march — they need other comforts to keep them in fighting shape — shelter, extra clothing, and toilet gear. These comforts must be carried on the back during the march.

By Capt Verle E. Ludwig

Because these material comforts of the halt contribute to the discomfort of the day's travel, the means of transporting them should have a day in court before the equipment board.

You've probably read it before, and perhaps you've said it before—let's repack.

Generally speaking, every Marine is a fighting man, and a fighting man must be an outdoorsman. He must be able to cope with the elements before he can apply his military capability to the end of defeating the enemy. History is replete with examples of the elements defeating an army.

I submit to the equipment board court that no experienced outdoorsman—whether he be a Swedish cross-country racing enthusiast, a trapper on the northern tundra, or a mountain climber—would venture very far afield with his necessary gear in the present military pack.

We assume that the current pack was designed to take the overflow of the seabag when the Marine moved out on a troop train or a ship; that it was never designed to be taken into battle complete with long blanket roll, knapsack and haversack, buckles, belts, and straps.

Even so, the present pack may be adequate, though uncomfortable. It

beats the ancient blanket roll carried across the shoulder, and it is superior to the "stove pipe" pack it replaced. The top part of the current pack, with the shoulder straps tied behind, wasn't a bad design for jungle fighting where the poncho provided adequate shelter. However, the Marine would be better off in a battle zone where one or more blankets are required if he were supplied with a better carrier for his individual package of comforts.

A formation of Marines on a parade ground with neat field transport packs or field marching packs looks very military and business-like. A field-weary battalion up before dawn and attempting in the cold and dark to put a pack together (including haversack, poncho, shelter half, parka, rations, and the bulky mountain sleeping bag) is something else again.

By the time this gear is assembled, fingers will be nearly frozen, tempers will be worn thin, and half the command will be carrying such an assorted array of ludicrous bundles it would appear comical if the discomfort these rigs cause were not so great.

This discomfort in the field caused by the galling pack means lowered efficiency. When a Marine worries about the cutting straps, biting buckles, and harassing hooks, chances are he is not watching the next ridgeline as closely as he might. This form of discomfort, in addition to bringing on fatigue at a rapid pace, also breeds contempt of supply discipline as the Marine attempts to cut down his heavy load.

This cut-down may be dangerous when an unexpected cold night or a prolonged stint on an inaccessible ridge finds a green fighting man with a pack too meager for safety. Even an old salt, or a first rate gear-conscious fighting man must spend too much time caring for his gear when he has the present pack and its accoutrements to deal with.

The solution? It would probably be reached only after a complete study and a great many tests.

This is not *the* solution, but it is one solution the Marine Corps might study — the adoption of at least two types of pack. One would be for use in areas from temperate to arctic (where blankets or sleeping bags are used) and another for tropic or semi-tropic regions. Either of these could be supplemented, where needed, with the versatile packboard as a carry-all base.

The cold-weather pack might be fashioned after the Alpine rucksack or mountain pack, similar to that now in use by the Corps' cold weather battalion at Pickel Meadows, California. The warm-weather pack might very well be fashioned after the old officer and first-pay-grade pack.

Authorities hold that the rucksack is not suited for level-country work because its characteristic low center of gravity was designed for mountains, where the forward lean of the climber causes the low-slung rig to rest its weight on the hips.

The author has done some flat-land marching with the rucksack well loaded with a sleeping bag and other gear, both at Twenty-nine Palms and Camp Pendleton, and still will take the rucksack over the issue pack any way the

Left—comfortable and easy to load

Right — takes all shapes and sizes

Rucksack—the weight's on the hips

latter can be rigged with the same gear.

In the cold dark of a pre-dawn move-out, the man with the rucksack has only to roll his sleeping bag into a ball, dump it in the bottom of a canvas sack, fold his parka and put it on top of the sleeping bag, dump all the rest of his gear in on top, pull the draw strings, lash down the flap and he's ready to go. All of this can be accomplished with gloves or even mittens on the hands.

THE RUCKSACKER can relax for a few minutes, if he's not inclined to help his buddy, while the buddy finds a clear spot, lays out his bed roll and gets it wound tight enough to make his outside-of-the-pack roll, fusses with buckles and straps, and worries together a rig that threatens to cut his arms off at the shoulders after a half-hour on the trail.

With snow on the ground the man with the standard bed roll to make finds his troubles multiplied with each turn of the bed gear, while the man preparing his "wad" for the rucksack has only to stand up, shake or brush the snow from his sack and then roll it up in the proper-sized bundle without it ever touching the snow again.

The packboard, with the addition of the waterproof bag that comes with the mountain liner for the sleeping bag, is a fair substitute for the rucksack; although the lashing job with the line and the knotting problem cuts down a little on the speed of the packing operation. The waterproof bag is loaded in the same manner as is the rucksack, however, and that's more than three-fourths of the battle. An advantage of the packboard is that the weight can be moved up on the board to raise the center of gravity.

The low center of gravity of the rucksack load is a feature of its design, however, and weight is supported by the waist and hips through the web suspension strung across the aluminum back frame. A packboard arrangement splits the difference between the current Marine Corps pack and the rucksack in that the canvas "deck" against the back provides some hip and waist support; but still much of the weight is carried by the shoulders.

As has been stated, we believe that the packboard has an important place in the field as a pack substitute in special cases—especially in carrying loads of irregular sizes and shapes.

The warm-weather pack poses no great problem. It should be one-piece with shoulder straps and flap — similar, as we have suggested, to the old officer and first-pay-grade pack, possibly with the addition of two fair-sized pockets on the outside on either edge of the haversack. The shoulder straps should snap or buckle to the base of the pack, and one fixed blanket-roll strap should be available behind the neck of the wearer on top of the flap to provide for a rolled field jacket or poncho. Provision could be made for the slip-through of two more blanket-roll straps on either side; that is, if the short blanket roll still is considered necessary.

But let's consider doing away forever with the present pack with its top and bottom parts, the troublesome belt suspender straps, the hooks, the buckles, and the discomfort of twenty or thirty pounds of tamped gear pulling our shoulders out of joint and our cartridge belts up around our solar plexus.

We still can't believe that our DI was serious when he said that if you pulled down on the belt suspenders and hooked them into your belt it would take the weight off your shoulders.

Remember that we first must conquer the outdoors before we can conquer the ranks of the enemy. Let's go to the outdoorsman for his theory on how best to re-pack our night's comforts for the next day's troubles. Then we can temper this wealth of advice with our experiences and knowledge of military contingencies and requirements.

The goal should be utility and comfort, especially for a cold-weather pack designed to carry the big load. Until we've found the answer, we can't afford to take off our present packs and stand at ease.

I think we need two types of combat packs, and I'm willing to let the supply agencies worry about that day in the jet-age future when we might have to move "from the snows of far-off northern lands to sunny tropic scenes" so fast we won't have time to change packs en route. USMC

KOREA AWARDS

Navy Cross

Maj James F. Lawrence, Jr.

Silver Star

Cpl Magdaleno Aguirre, Sgt Charles E. Arnold, Maj Robert W. Baker, 2dLt John W. Beck, PFC Robert N. Beck, 2dLt John J. Bissell, PFC Charles W. Calef, PFC Vincente Carlos-Perez, SSgt Charles A. Cavanaugh, PFC William H. Clark, PFC John A. Comiskey, Sgt Stephen L. Constantine, TSgt Kenneth H. Curney, PFC Vincent R. DiPreta, 2dLt John J. Donahue, PFC Kenneth P. Durham, 2dLt Jules E. Gerding, Sgt Glen F. Gustafson, Capt Chester R. Harris, PFC Gilbert D. Haugan, PFC Joseph F. Higgins, Cpl Raymond E. Hosman, 2dLt William E. Hutchinson, TSgt Anthony J. Ivaniski, Cpl Eugene E. Kane, PFC Jack W. Kelso, Cpl Harold H. Leach.

Capt Ernest S. Lee, 2dLt George C. Lee, Capt Edward N. LeFaivre (2d), Cpl Lawrence E. Lett, PFC Paul Leviner, 2dLt Edward N. Lukas, Capt Gene M. McClain, SSgt Robert M. McNesky, PFC George T. Moura, Jr., 2dLt Merrill M. Newman, Capt Robert A. Owens, Sgt Richard L. Pavlic, Sgt John R. Previte, Maj William Regas, 2dLt Pierre D. Reissner, Jr. (2d), 2dLt John J. Ross, III, PFC Donald F. Ryan, PFC Richard E. Saccomano, PFC Joseph E. Schilling, 2dLt Howard L. Siers, PFC Jerry E. Siler, PFC James W. Slavey, Cpl Joseph T. Smith, 2dLt William B. Springfield, 1stLt Victor Stoyanow, SSgt Ralph E. Surber, Cpl Robert M. Walker, Cpl Stephen A. Whiston, 2dLt Charles T. Williamson, SSgt Harvey Wright.

Legion of Merit

Col Russell E. Honsowetz (2d), Maj John L. Hopkins, Col Robert A. McGill, Col Frederick R. Payne, Jr., LtCol William F. Pulver, Col Frank H. Schwable, Col James F. Shaw, LtCol William R. Watson, Jr.

Distinguished Flying Cross

1stLt J. W. Brogdon, Jr., LtCol Robert L. Bryson, Capt Richard W. Cline, 2dLt Ralph M. Costello, 1stLt Warren J. Dillberg, Capt William J. Donovan (2d), 1stLt Fred J. Drinkwater, Maj Richard J. Flynn, Jr., Capt Floyd K. Fulton, Capt John J. Geuss, Capt Alexander J. Gillis, 2dLt Cooper L. Gilman, Capt Edward J. Godfrey (2d), Capt Oliver D. Higgins, LtCol William A. Houston, Jr., Capt Robert D. Janssen, Capt John Kapowich, 1stLt Thaddeus Kolankiewicz, Capt James J. Kraus, Jr., Capt Jack T. Kutrukis, Capt John A. Lough, Capt Chester M. Lupushansky, Capt Archibald M. Mann (3rd), 1stLt Paul G. McClanahan, Capt John E. McVey, Maj David R. Moak (4th), Capt Lavern J. Oltimer, Capt George W. Parker (3d), 2dLt Ronald S. Patton, Capt James T. Pearce, 1stLt Robert C. Phelps, Capt Leon W. Pierce, Capt Olen H. Price, Capt Grady W. Ray, Capt John C. Riley, Capt Harry G. Robinson, Jr., MSgt Paul H. Sallade.

1stLt Richard A. Savage, 2dLt Robert C. Schlaudt, 2dLt Fred H. Sitz, Capt Harold E. Smith, Capt Leland R. Smith, 1stLt Robert T. Smith, 1stLt Roland T. Stump, 1stLt Fred Stutler, Capt Lee B. Swindall, Maj Summerfield M. Taylor, Jr. (2d), 1stLt George W. Weems, Capt Charles C. Whipple (3d), Capt Charles Whitacre, Jr., Capt Kenneth H. Winchell, Maj Eugene H. Winchester, Capt George L. Winneberger, 1stLt Alan T. Wood (2d), Capt Charles L. Woodbridge.

Bronze Star

2dLt Alfred R. Abboud, Maj George E. Allison, LtCol Sidney J. Altman (2d), TSgt Charles B. Ash, Jr. (2d), 2dLt Harry E. Atkinson, Maj Robert L. Autry, 2dLt Charles Barcarisse, PFC Richard E. Barnett, WO John H. Baldwin, Cpl Jackie R. Bean, PFC Robert R. Becker, Cpl Clarence L. Bentley, PFC Wilber J. Berger, PFC Arthur H. Block, PFC Aloisius A. Bollack, TSgt Eugene W. Brogdon.

MSgt Warren V. Brown, PFC George E. Byrne, PFC William P. Cahill, SSgt Marion Carcirieri, Cpl Daniel Cartagena, Maj Thomas F. Cave, Jr. (3d), Sgt John T. Chapin, Cpl Blaine W. Clark, PFC John R. Clark, Capt Thomas W. Clarke, SSgt John J. Cocran, PFC Robert F. Colville, 1stLt Wilson L. Cook, PFC Arnold L. Copitsky, SSgt Charles M. Culver, Sgt Wallace L. Cunningham, Sgt Kenneth D. Curtis, Maj Marion C. Dalby.

Sgt Clifford O. DeSautell, Jr., SSgt Arnold C. DeWease, MSgt John K. Dixon, Jr., Cpl Monroe E. Dixon, Capt James T. Doswell, Maj Hoyt C. Duncan, Sgt Douglas M. Edgar, LtCol Hugh M. Elwood, PFC Daniel J. Eng, PFC David E. Everson, Col Reed M. Fawell, Jr., Cpl Richard L. Fields, 2dLt Thomas C. Fields, Cpl Howard Fisher, Maj Thell H. Fisher, PFC Paul L. Fligge, 2dLt Harlan C. Flinner.

PFC Raymond Flores, Maj Richard J. Flynn, Jr., Sgt David D. Fuller, Cpl Manuel R. Garcia, 2dLt James W. Gary, 2dLt William P. Gorski, PFC Eugene J. Griffin, PFC Kenneth P. Guhl, 1stLt Edward Hannon, WO Horace Harmer, MSgt Earle Hattaway, 2dLt Fridolin W. Heer, Cpl Marvin J. Heminger, TSgt George H. Hennessee, Cpl Robert C. Hidalgo, 2dLt James F. Hinkhouse, 1stLt Donald C. Holmes, Capt Bill E. Horner, Sgt Ventura J. Houpy, Jr., TSgt Alfred C. Huard, Sgt John H. Hudson, 1stLt Richard D. Humphreys, PFC Hascue Hurley, Jr., Sgt Aleck R. Irvin, Cpl Harry R. Jacobsen, Maj Richard H. Jeschke, Jr., Cpl William L. Kent, PFC Joseph M. Kelly, Jr., Cpl Oswald T. Keola, PFC Stanford Kintigh, Pvt Phillip K. Kniffin.

MSgt Charles K. Kohnow, PFC Donald R. Kowalski, Maj Richard C. Kuhn, PFC Ronald E. Lasecki, PFC James P. Leathers, Pvt Charles D. Lindsey, Cpl Lloyd A. Lockliear, Cpl Gustave J. Logerfo, Jr., LtCol Glenn R. Long, Cpl Danie O. Lotrecchiano, PFC Sidney C. Lusby, PFC Wiley MacDonald, Jr., Capt Donald C. Mack, PFC Charles A. McAndrews, Sgt William McCall, SSgt Richard C. McDonald.

LtCol William S. McLaughlin, Sgt John P. McMenemy, Sgt Robert L. McMickle, Jr., PFC Michael J. Mahoney, Cpl Daniel P. Maloney, PFC Nicholas J. Marciano, 2dLt Frank P. Marcus, PFC Forster A. Marth, Cpl Melvin B. Martin, Cpl Everett E. Mass, Sgt Asencion P. Mauricio, PFC Thomas W. Mawer, SSgt Leroy E. Miller, Jr., Cpl Wesley D. Miller, Sgt Thomas C. Mills, 2dLt Herbert T. Mitchell.

Capt Stanley T. Moak, SSgt George A. Moffett (2d), 2dLt William W. Monahan, Capt Edgar F. Moore, Jr., LtCol James B. Moore, Maj Walter Moore, Cpl Patrick J. Morton, SSgt Martin L. Moynahan, Maj Dennis D. Nicholson, Jr., LtCol Franklin B. Nihart, 2ndLt Walter C. Noakes, Cpl Robert H. Nolen, PFC Floyd H. Owens, Cpl David H. Parker, PFC James E. Payton, Cpl Gene H. Paxton.

SSgt Louis J. Pellizzari, PFC John A. Perez, 1stLt Laurence M. Phelps, CWO Mark A. Pope, PFC James D. Pratt, MSgt Thomas J. Priddy, PFC Joseph C. Reading, TSgt Bud C. Riceson, Cpl Paul Riley, Sgt David J. Rogers, SSgt William A. Rowbottom, 1stLt Archie R. Ruggieri, Maj Robert W. Rynerson, Sgt Jack Sahlbom, PFC Hubert Segundo, 2dLt Howard L. Siers, Cpl Charles O. Spallone, 1stLt Clyde H. Stamps, Sgt Delma B. Starling, SSgt John J. Stenz, SSgt Paul Stephens.

Cpl Asa W. Strickland, Jr., Cpl Leo Stroman, PFC Jesse C. Swoape, Sgt Edgar L. Teague, Cpl Robert R. Tetrick, Capt Earl W. Thompson, PFC Harley G. Thompson, Cpl Maryon L. Trzaska, SSgt Robert D. Twitchell, LtCol Vernon O. Ullman, Capt William M. VanZuyen, 2dLt John D. Vohs, PFC Ronald W. Ward, Maj William A. Weir, PFC John J. Williamson, TSgt Ray Wilson, PFC Jerry C. Yeargain, Cpl Donald R. Zernikon.

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TELL 'EM

"WHY THE GLOOM, GUNNY?" asked the battalion legal chief. "You look as though you just got a hundred dollar checkage."

Charlie Smith, the gunnery sergeant and acting platoon leader, sighed over his cup of hot brew.

"Gotta lecture the platoon on going over the hump tomorrow, and for the life of me I can't tie the thing together. I've got all the dope I need but it's just too dry and short a subject to spend an hour on. I don't see why they don't get you to give it, and I told them so, but they say battalion is too busy, so I'm stuck with it. How should I start it?"

"It's not as bad as all that, Charlie. Why don't you just read them the article from the Uniform Code that applies to going over the hill and explain it in plain language. Most of them don't know what the score is. Just explain what constitutes going over the hill, and what action can be taken against them for committing the offense."

"That sounds all right from your end of it; you're in the business, but I'm a field soldier, not a graphite commando, legal beagle, or desk jockey . . . How would you do it?"

"Well, I'd start off — you know. . . . 'This period this morning is on a subject which hits closest of all to destroying the Marine Corps. Called Absence Without Leave by title, all it means is going over the hill. Known in the Uniform Code of Military Justice as Article 86, it is divided into five types of offenses. . . .'"

"Five types? Over the hill and

Few men realize just how much unauthorized absence can cost. Here is a practical dollars-and-cents view of the situation

WHAT IT COSTS

By MSgt Richard A. Brasier

AWOL are all the same. It's only one charge."

"Nope! You're all wet, and as you can explain to the men, it's five offenses. The first is 'failure to go to an appointed place of duty.' That's to cover the joker who is ordered to go on mess duty at 0400 but who doesn't get there . . . he sacks in. Remember, under Rocks and Shoals we couldn't do much about it. In order to commit an offense the man had to leave the base. Of course we could try him under the old 'conduct to the prejudice of good order and discipline,' but there was no specific charge for the offense."

"Hey, that's right. We had a kid in the Seventh who went over to another outfit for a couple of days. He could prove it too . . . they said something about his not having left Naval jurisdiction. Well, what's the next one?"

"You know this one—actually going over the hump and not returning . . . that's the old AWOL or unauthorized absence as they called it later on. Remember, it used to be AOL or AWOL; now it is 'the man who absents himself, or remains absent from his unit' etc. . . . Okay?"

"Well, that's only two of them. You said there were five. Give."

"Well, first there's 'absence without leave from guard duty or watch.' That could be some character leaving his watch station and running over to the club for a beer.

"Then you have a little more serious offense, 'Absence without leave with intent to avoid maneuvers or field exercises.' This offense is considered more serious and calls for heavier punishment.

"Last, but not least, we have 'Absence without leave from guard duty or watch with intent to abandon.' This is a very serious offense and can get the joker who commits it a BCD."

"You mean just because I take off in the afternoon to see my wife when there isn't anything to do, I'm over the hill?"

"That's the way it stacks up, Charlie. If the Old Man doesn't give you permission and you shove off anyway, you can be charged with unauthorized absence."

"Well, that's an eye-opener, and it will be worth pointing out. It's all good dope but what you gave me won't take up an hour. What do I do for the rest of the period?"

"Carry it on, Charlie; tell them what they can get."

"What's that?"

"According to Article 86 of the code, anything a court martial may direct, and that can be plenty."

"That doesn't mean a thing to me; how can it mean anything to the guys I'm talking to. I've got over fifteen years in and that could mean anything. If it means nothing to me, what would it mean to the troops?"

"Right here you drift off just a bit, old boy. Explain that a general court can give the book; a special up to six months and a BCD along with reduction and no pay; and then the little one-man court, the summary, can give up to one month in the hoosegow, reduction, and loss of two-thirds of a month's pay. Of course right here you have to add a little bit for the AWOL part. I'd put it to the men like this: 'You've heard the limitation as it applies to the court which tries you for an offense. That is the limit the court may adjudge for any offense it tries. Congress has seen fit to add a further limitation on the offenses. All of you have played baseball and know what happens when you swing at a pitch after two strikes have been called and you miss. That's right. You're out! Well, this code is just the same. The first strike is the first offense. You can get locked up for three days for each day over, and lose two days pay for every day that you stay away without authority.' "

"Hold it, Tim. You just said two-thirds of a month's pay in a summary, and that allows only for ten days over the hill."

"Give me a chance, will you? Maybe I'll answer all of your questions when I'm done with this sample spiel and you won't need to ask any more.

"Now, as I was saying, it's three days in the brig, and two days' loss of pay for each day over the hump. Let's say this Joe was over for ten days, and he gets a summary for the offense. Maximum confinement is thirty days, that's ten times three on the three-for-one setup. On the loss of pay deal it's two days' loss for every day over the hill, or two times ten — twenty days' loss of pay, which in this case comes to exactly two-thirds. . . . That's strike one. Strike two amounts to the same thing so we won't go into it, but let's look at that third swing.

"Take the same man. Say he got a summary for the first offense and another summary for his second trip over the hump. Now he's over again: it's just like a ball game—it's his third strike and he's out.

"With two or more previous courts on his record he can get from three to six months' brig time plus a BCD and forfeiture of all pay and allowances. If it happens that the character was gone long enough to prove desertion he may be given a general court which could award him three years in the brig plus a dishonorable discharge.

"In addition to what I have mentioned you might bring home to your class the fact that reduction in rank may be given by *any* court for *any* offense. That applies in all cases with only one slight restriction. A summary court can take only *one* stripe away from a person who is in the first three pay grades."

The legal chief paused for breath and the Gunny thought it over.

"That covers the courts pretty well," said the Gunny. "But how about the Old Man giving punishment?"

"That comes under Article 15," continued the legal chief. "It says that for certain offenses the commanding officer can give two weeks' restriction, or two weeks' extra duty, or reduction to the next inferior grade. That's while on the beach. Aboard ship it's a little different — seagoing, the Old Man can award seven days' straight brig time or three days' bread and water time. Not like the old days when he could only hand out five days."

"Seems to me I heard a court martial order published to the command the other day, or saw it on the bulletin board, that a man was given thirty days' bread and water. You said the only bread and water is on ship. You didn't mention it back there about the courts. So, how come? It ain't legal, so why give it?"

"Better get a book, old man; bread and water is legal, but this is how it works. Let's say that the man was gone for twenty days, and when tried by a special it gave him the limit.

"Remember, for the confinement we said it was the three-for-one deal. Okay, three times twenty is sixty, right? But the man who wrote the book knew, just as we know, that two months in the can isn't as effective on some people as bread and water. So they wrote into it that instead of locking a man up at hard labor, the court could substitute bread and water at the rate of one-half day for each full day's confinement at hard labor, up to a maximum of thirty days.

"Or maybe they need manpower in the company, so they substitute hard labor without confinement. But that type of punishment is not as hard as the original sentence so the substitution is different. One and one-half days' hard labor without confinement is equal to each day at hard labor with confinement. That goes up to three months in a special or up to forty-five days in a summary. Of course the summary could only give fifteen days' bread and water anyhow. The court could even give restriction up to two months at a rate of two days for each day's hard labor authorized."

"Let's see if I have that punishment straight? Summary gives thirty days in the brig and two-thirds of a month fine. A special gives up to six months in the brig, a BCD, and forfeit of all pay and allowances. But absence is figured for three days in the brig and two days' fine for each day gone, right?"

"Okay, except for one point. Don't say 'fine.' A fine is one thing now and a forfeiture is another. Courts can sentence a man to a forfeiture of pay *and* a fine. But the forfeiture is depriving a man of a certain amount of his pay, and a fine is an amount due the Uncle. That fine shouldn't be put against a man unless he is also to be discharged, and unless he unjustly profited by the offense he was convicted of. When you get into contempt proceedings, a fine will be levied. So be sure to tell them *forfeiture* of a certain amount of pay.

"And another thing, this forfeiture is all chopped up into little pieces. The Government didn't want to hurt a man's family when he committed the offense. Remember under AGN when courts, or some of them, were read off it was found that all the pay was taken from a man except the twenty-two dollars he was donating to family allowance. Well, we have the same thing now, even though we don't have FA. We've got BAQ and all that, but when they figure how much money to take away, they do it like this.

"Take the base pay and subtract the man's contribution to BAQ. Say a PFC gets eighty-five eighty. Take away his contribution to the family, or forty dollars. Then you can figure on taking away two-thirds of what is left, or two-thirds of forty-five eighty, unless of course he gets a BCD or a DD. In that case they can take everything."

"You dropped the ball there all right because if a man is married he also gets rations. And what about the government's donation to FA?"

"Can't touch that. Just what he has left from his base pay after you deduct the contribution to family allowance. After you've reached this point, why not explain about the effects of going over the hill. You know a man goes over the hill and is gone for a good while. What happens? First he's carried on the diary as going over the hill. After a few days an absentee notice goes out. Then when the man's gone for thirty days he's declared a deserter.

"That's not the end of it. A letter goes out to his next of kin, mother, father, wife, uncle, aunt, grandfather, or whoever it may be. Pour it on thick right here, Charles. The man's reason for going over the hill was to help his dying mother. You know, no leave coming, afraid to ask for emergency leave, just plain stupid, who knows? But over the hill he goes. He gets home and tells his dying mother that he got ten days' emergency leave. He knows that in seven days a notice will be mailed and it could take the three days to get there, so the folks won't know the difference. But think of the effect a notice that her son is over the hill will have on a dying mother with a weak heart. Okay, so you want to argue that the boy can intercept the mail. What about the deal when the deserter's notice comes through? That would be even worse. And so he

intercepts that one, too. Well, that notice is also sent to the chief o police of the town, or the sheriff or two dozen other people in the area. It is bound to come out sooner or later that he is a deserter.

"His picture is posted on the wall with the bank robbers, rapists, murderers. And then, of course, there are the I-told-you-so people all over town who will come back and say, 'I always figured he was no good.'

"Let's keep 'em crying now, Charlie. Explain how a letter goes to the next of kin saying, 'What do I do with your boy's gear now that he's gone? We don't want it, do you?'

"Also speak of that letter which also goes out explaining what can be done to the person who hides and protects a deserter. This is for the benefit of those whose motto is 'I didn't raise my boy to be a soldier.' Okay, you got them shook proper. Now ease the pressure off a little bit and tell them about the people who can help them out if they get in a jam.

"The company commander, the legal officer, the first sergeant, the battalion commander, the Red Cross, the chaplain; any of these will help. Tell them if they are on leave and can't come back on time to telephone, telegraph, or somehow notify their unit. Tell them not to take the law into their own hands and then get stuck for the difference. Tell them anything to pound into their heads that it's better to lay facts on the line and get that pass they need than it is to go over the hill.

"Punch it in, Charlie. That's all you need to do. Tell them to think back on civilian life. The boss at the factory can only fire them if they don't come to work, but the Uncle doesn't play that way. A contract is a contract, and the only thing left to do is to punish. Appeal to their better nature, Charlie, but convince them.

"But you know, Charlie, there's another angle to this AWOL business that I think might help a lot. Just tell your kids to ask themselves one question. See if they can answer that one question. Ask them what is the price of absence? What does it cost to go over the hill? Tell me, Charlie, do you know the answer?"

"I think so. Loss of pay, confinement, bad record, possible BCD. That's about it."

"You think so? Let's look at it this way. How long does it take a man to make PFC after boot camp?"

"Three months."

"Right. And then in about six months he can make corporal, a year more for sergeant, and then eighteen months to two years into the staff ranks."

"I think I see the point."

"You must, because that man who makes PFC has earned the pay of a private for the first three months. Then he stays a PFC for three months and goes over the hill and stays for thirty days. When he comes back he is given a special. They give him nearly the book — reduction, two months in the brig, and fifty-five dollars for two months. Now he is a private and he has to wait another three months to make PFC again, another six to make corporal, and so on up the line. So actually he is nine months to a year or more behind in all his ranks, if he gets just that one conviction. Now, Charlie, tell me how much a master sergeant makes in a year under the present rate of pay?"

"I don't know, exactly."

"I had to look it up the other day. After eight years of service, and that is about the time it takes a man to make master sergeant these days, his pay is two thousand seven hundred fifty-one dollars and some cents. Now a Tech with the same time in only makes a little better than twenty-three hundred a year. There is a difference of some four hundred dollars for that year alone. In other words he actually would have to stay in the Corps almost a year longer than another man with a clean record in order to make the same amount of money. I got quite interested in this angle some time ago and drew up this little chart," said Tim, drawing a card from his wallet.

"Let's use round figures, and say that a private earns fifty dollars a month; a PFC gets one hundred dollars; a corporal gets one hundred and fifty dollars, and a sergeant makes two hundred. Even though these figures are way off from the regular pay scale, they are a good sample. Under normal conditions with a good clean record a man could expect to make sergeant just about on the two-year mark. Look at these figures:

Good Record

Pvt	3 mos at $ 50	$ 150
PFC	6 mos at 100	600
Cpl	12 mos at 150	1800
Sgt	3 mos at 200	600
	Total pay for 2 yrs:	$3150

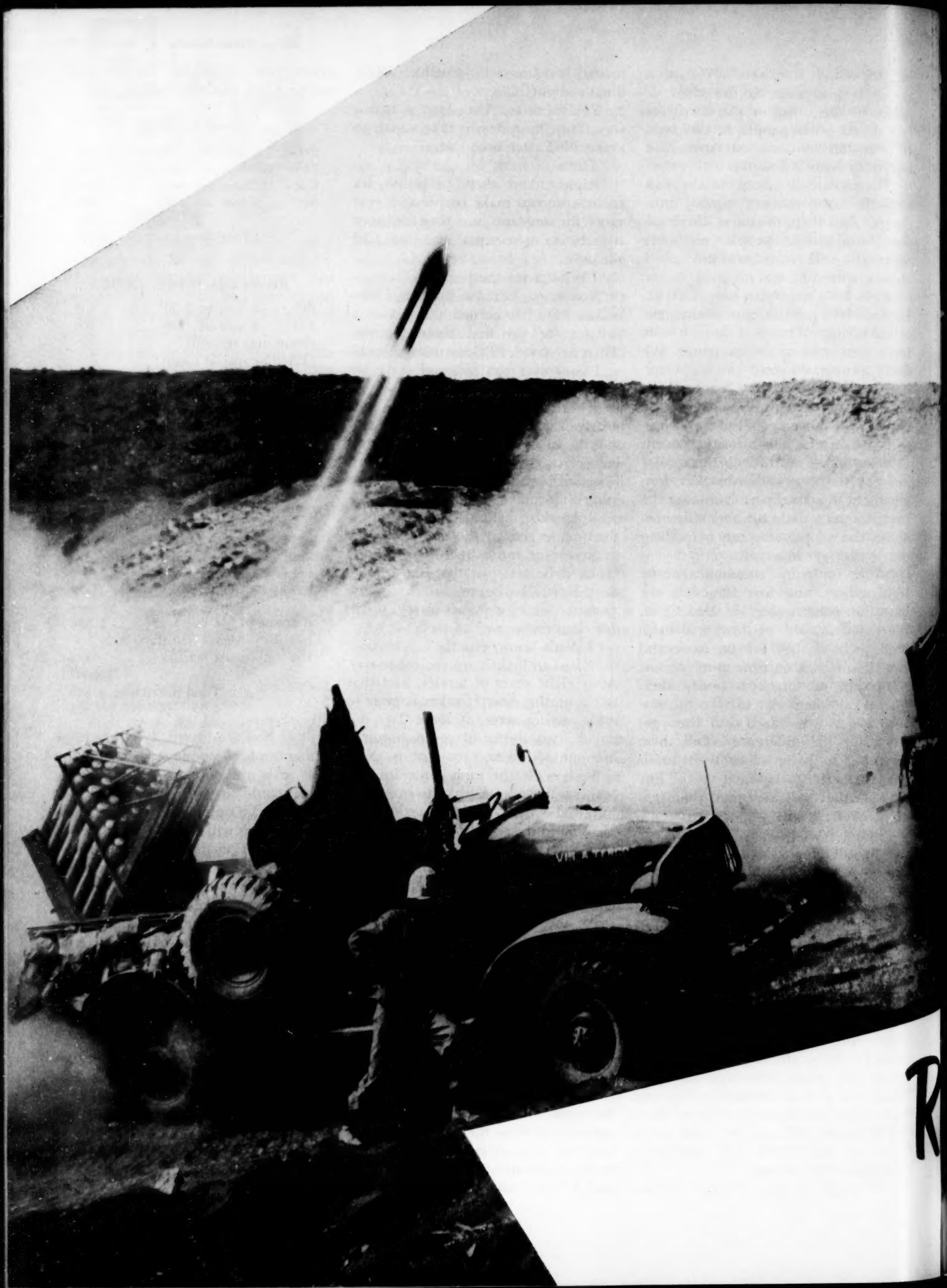
Record with 30 Days AWOL

Pvt	3 mos at $ 50	$ 150
PFC	3 mos at 100	300
(Went over the hill)		
(Tried by special court)*		
Pvt	3 mos at 50	150
PFC	6 mos at 100	600
Cpl	9 mos at 150	1350
	Total pay for 2 yrs:	$2550

*Sentence of special court: Two months' confinement, reduction to private, and forfeit $55 per month for two months.

Pay from good record	$3150
Pay from poor record	2550
Amount of lost pay	$ 600
Pay lost—AWOL (30 days)	100
Pay lost—court martial	110
Total difference:	$ 810

"See how it adds up. Well, the same thing could be done with the actual pay scale and show just how much a man could lose in actual pay. It wouldn't be quite as large as this card shows but it will show how things add up. And, Charlie, it doesn't take a court martial to end up with the same answer. Normally three office hours or one court will disqualify a man for promotion. And think of the training in his MOS the man is losing. Think of the furlough time and money. He can lose the money it costs to get him back to his station, his clothing might get lost, strayed, or stolen while he is away and he has to pay for it. Remind them that they don't get allowances, pay, or leave time while over the hill. Take our case once more. Check it. Note that our man is one rank and three months' seniority behind and minus one-third of two years' pay. Ask them again, Charlie. 'What Does It Cost?' " USMC



Ripple and Run

Plenty of firepower, but limited mobility—rockets need new wheels

By LtCol J. J. Wade, Jr.

FIRST IMPRESSIONS GAINED BY A neophyte watching a rocket battalion in action usually prompt the question, "Where's the fire?"

It's true, to the lay-brother-in-arms the rocketeers seem to continually be rocketing around the countryside—always in a hurry. But there's good reason for them to be dashing to their fire missions, and then getting the heck out when the blast is over, as Captain Edward A. Bailey pointed out in his excellent article *Fire Mission Rockets*, published in the September 1952, *Gazette*.

"The close-in firing position made necessary by the short-range rockets," writes Capt Bailey, "the brilliant flash and blast of the rockets, the billowing smoke and the dust—all demand an outfit that can get into position, fire, and get out on the double before the enemy does some pummeling of his own."

Capt Bailey is one of those few individuals who deserves to be recognized as an expert in the tactical and technical aspects of field artillery rocketry, and his statements and ideas therefore merit the utmost consideration in determining the future course of rocket and launcher development.

His capsule description of what an assignment in a rocket battery was like was contained in a single quotation, "It's just like a fireman's job, without the shiny brass pole."

In brief, Capt Bailey describes a tremendous concentration of firepower, together with almost constant movement. Has he been given the tools best suited to the accomplishment of that mission?

The fire-brigade atmosphere of the rocket battery bent on execution of a fire mission is a positive argument in favor of a self-propelled mount. Another argument in pictorial form appeared in the November *Gazette's* "In Brief," the caption stating: "Marine helicopters, already famous for versatility, chalked up another first last month in Korea. Heretofore, hard-hitting Marine rocket batteries were hard pressed to escape Red counter-fire attracted by their tell-tale smoke and dust. So now helicopters lift the batteries into position, wait while they fire, and fly them out again."

The economy of employing helicopters as prime movers for rocket launchers is not pertinent to the problem at hand. It does, however, emphasize the inadequacy of the present towed launcher.

Analysis of certain World War II developments in the rocket field lends no justification to our position at present. While this nation in 1940 was simulating basic combat vehicles during Louisiana maneuvers, Nazi Germany was perfecting and employing radically new components of a striking force tailored to a war of movement. German military leaders recognized the need for maximum mobility in such weapons as rocket launchers by accomplishing the transition from the towed Nebelwerfer to the self-propelled Panzerwerfer.

By modern standards of combat vehicles, the Panzerwerfer appears crude. Nevertheless, it lent maximum mobility to the multiple rocket

launcher by its lightly armored, half-tracked chassis.

When the Marine Corps pioneered the rocket launcher field among U. S. ground forces during the latter part of World War II, it assembled its own crude version of the Panzerwerfer. With creditable foresight, the Camp Pendleton rocket battalion gave little or no consideration to a towed launcher. Instead, they mounted an experimental Navy Mk-7 rocket launcher in the bed of a one-ton, 4x4 truck. The automatic gravity feed launcher could fire twelve rockets either single fire or automatically, at the option of the gunner. The weapon was laid in azimuth by the truck driver, and in elevation by the gunner's manipulation of a so-called "crutch," supporting the forward end of the rocket racks.

Helicopter lift — fast, but there's still a hitch

DESPITE THE FACT that provisional rocket detachments successfully employed this jury-rigged weapon in the Marianas, Iwo Jima, and Okinawa operations, and were able to exploit its inherent mobility, the close of World War II saw the Marine Corps drift into acceptance of a towed rocket launcher. Capt Bailey's article constitutes, at second reading, indictment of this retrogression in rocket development. The 1st Marine Division's expedient of helicopter transport is only additional testimony.

The present towed launcher of questionable mobility should be fairly analyzed before condemnation. Among its assets are its ability to lay down an intense concentration of lethal high explosive in minimum time, and its light weight.

Its liabilities, however, include the necessity for unlimbering and limbering the weapon for each fire mission, with time always being a critical factor. The launcher must be manhandled to varying degrees on every fire mission. Low ground clearance of the after end of the launcher creates a number of problems, including the kicking up of dust clouds which pin-point the position for some period after firing, as well as blast erosion of the supporting soil, which complicates rapid evacuation of the position.

Portable means of electrical ignition of rockets have not always proven dependable. The existing launcher affords no armor protection for weapon or crew. And the present launcher needs a larger crew to speed up time-consuming functions on a basically unwieldy weapon.

It must be granted that certain circumstances justify retention of the towed launcher with all its shortcomings. Just as the Marine Corps has seen fit to retain the 75mm pack howitzer for employment in special operations, the towed 4.5-inch rocket launcher could profitably be placed in a Class IV category for use when the situation ruled out movement of heavy self-propelled weapons. Helicopter transportation in Korea is a case in point.

What would be the advantages of retracing our steps toward revival of the self-propelled launcher? Perhaps the simplest method of illustrating such advantages would be a hypothetical mounting of the present multiple launcher on Capt Bailey's prime mover, the 1½ ton, 6x6 truck.

Prior to such mounting, the wheels, axle, trails, and spades, as well as the present inadequate and controversial swing-down firing pedestal, would be discarded, along with probably half the weight of the weapon. It would then be necessary to provide a simple pedestal mount, fixed to the truck bed, which would permit the launcher tubes to elevate and also traverse slightly. (Major changes in azimuth could be accomplished by moving the vehicle.) Total weight after such modification would probably not approach that of the present launcher.

The advantages of such a change are obvious. Limbering and unlimbering the weapon would be no longer necessary, nor would any manhandling be required. Besides the reduction in number of crewmen, it would be possible to move into or out of a firing position in a matter of seconds.

Raising the launcher a greater distance above ground level would minimize the effects of rocket blasts, less direct force being exerted in the creation of dust clouds and scattering of

debris. It should be entirely feasible to mount a simple blast deflector to further ensure against jet disturbance of the surrounding soil.

The vehicle's ignition system would provide a source of power not presently available for positive ignition of rocket motors. Light armor on the cab would not only give protection against small arms and shell fragments, but would also permit the vehicle to be manned during firing. The launcher, then, could be driven out of position the moment its rockets left the tubes. Such capability would greatly reduce the effectiveness of hostile counter-fire against the firing position.

Such means of achieving self-propulsion—the mere mounting of the launcher on its prime mover—would certainly not be the best solution, even though it would enjoy significant advantages over the present towed system. The best solution would be to mount the multiple rocket launcher on a tracked vehicle, thus substantially increasing its cross-country mobility.

Capt Bailey would have enjoyed far greater latitude in choice of position areas for his battery in Korea had he been looking for routes suitable for track-laying vehicles in addition to those canalized approaches appropriate to a truck with towed load. His article points out: "The most desirable rendezvous area is one located slightly to the rear of the light field artillery battalion and quickly accessible to the best roadnet."

In areas less precipitous than Korea, the tracked vehicle would open up a far wider range of approach routes, firing positions, and routes affording rapid evacuation. In many such areas, wheeled prime movers might well be unable to operate.

FEW TACTICAL elements in the present stalemate in Korea are called upon to execute rapid movements. The rocket unit is one of the few exceptions, as the expedient of helicopter displacement will affirm. What then would be the situation in a war of movement, as during Rommel's flight after El Alamein? Targets of opportunity suited to rocket attack would be plentiful. Only a weapon of maximum mobility would be equal to the situation.

If the tracked vehicle affords advantages over a truck in such respects as mobiltiy, armor protection, and load carrying capacity, should not the amphibian tractor be considered for such a role? The application would certainly be in keeping with the mission of the Marine Corps.

No attempt should be made to develop an armored amphibian rocket launcher, with stabilized fire control, capable of rocket delivery while enroute to the beach. Engineering problems would be of major proportions. Their solution would constitute mere duplication of the fire support furnished at present by the LSMR of the amphibious force.

Development efforts should be restricted to an armored amphibian vehicle capable of early landing, of maximum overland mobility, and of delivery of a heavy concentration of rocket fire against area targets which might threaten the landing force during the period of its early critical foothold on the beach.

Only an amphibian vehicle will fulfill such a requirement. Certainly the present towed rocket launcher is not capable of employment in such a role, nor would a self-propelled launcher mounted on either a truck or tank chassis be suitable.

The use of the LVT would permit a significant reduction in the total number of weapons required for delivery of a given number of rockets on the target. If the present towed launcher were adapted to the LVT, it is quite possible that two could be mounted on a single vehicle, designed for broadside fire in order to prevent mutual interference. A more satisfactory solution might be the retention of a single-pedestal mount, but with a wholesale increase in the number of rocket tubes. This would permit the attack of targets by the same weight of high explosive, but with a considerable decrease in the number of weapons and crewmen. Conversely, it would permit the present number of weapons and crews to lay down a concentration of much greater volume and lethality, if desired.

Self-propulsion should be regarded as a mandatory characteristic of the multiple rocket launcher. Besides providing the utmost mobility, maximum firepower, and economy of personnel, a full-tracked, amphibious weapon would materially reduce, by its light armor, the effects on the crew of blast, heat, and toxic radiation from tactical atomic weapons.

Let's give Captain Bailey his shiny brass pole. USMC

Liabilities — limbering and unlimbering for each mission

Behind the closely guarded doors of the testing center at Quantico, enlisted promotion tests are made up and marked. Here's how the process works

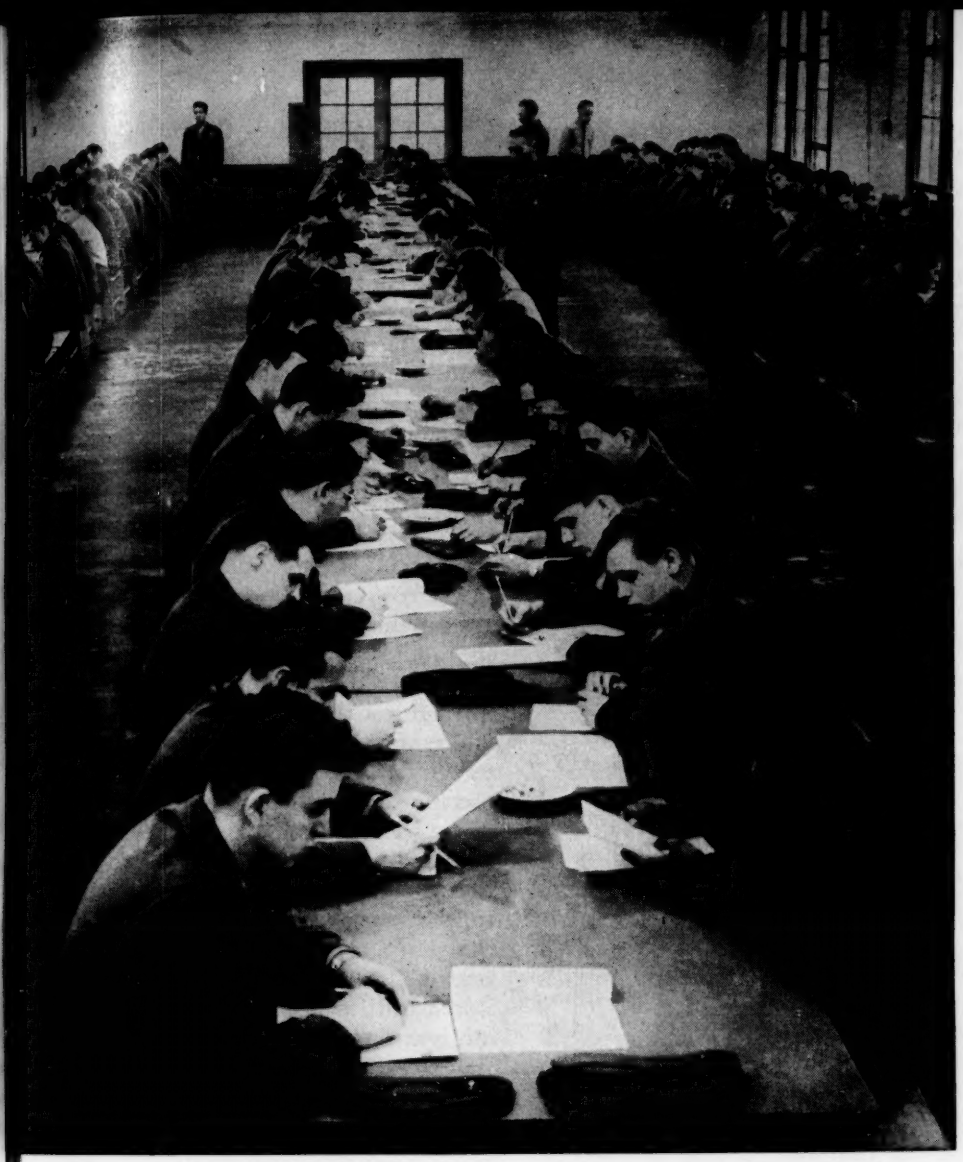
They know the score

ARE YOU ONE OF THE THOUSANDS OF ENLISTED men in the Marine Corps who has just taken a general military subjects test or a technical test in your military occupational specialty for promotion? Have you ever wondered who prepared the tests and where they got their material? Do you have the impression that the tests were written by armchair commandos who take a sadistic delight in dreaming up questions designed to stump all but those who, for recreation, read the field manuals instead of the comic strips? If so, then lend an ear, for here are some of the answers to you questions.

The general military subjects tests and technical tests administered to Marine Corps personnel to determine their professional fitness for promotion are prepared under the supervision of a unique organization known as the Testing and Education Unit, located at Quantico. The mission of this organization in part is, "To prepare, distribute, and score promotion examinations for . . . enlisted personnel of the Marine Corps. . . ."

The Testing and Education Unit is headed by an officer in charge who has the responsibility for the over-all accomplishment of the mission of the unit. Assisting him in this responsibility is the coordination and review section, the duties of which will be discussed in more detail later on in this article. Eight technical test sections prepare examinations in the various functional fields. Printing, art work, mailing, and scoring are accomplished completely within the unit.

The purpose of the promotion testing program in the Marine Corps is to determine, as nearly as possible, which men know



By Capt Robert H. Piehl

their jobs. In general, the efficiency of the Marine Corps can best be maintained by promoting those men best qualified professionally to hold the next higher rank. The function, then, of a promotion test is to determine how well a man knows his job with respect to all other men of the same rank and MOS in the Marine Corps.

IN ORDER TO accomplish this function, it is desirable that a promotion test possess certain characteristics. First of all, a test must be valid—in other words it should measure what it is supposed to measure. The test items should sample as nearly as possible all parts of the field. An examination administered to a tank leader, for example, should cover insofar as practicable everything that a tank leader should know. It should separate the good tank leaders from the poor ones. The examination should not contain items on subjects with which a good tank leader need not be familiar. Also, the number of items written on each subject should be proportional to the relative importance of that subject within that field. Again, considering the tank leader test as an example, under the subject of gunnery, about ninety percent of the gunnery with which the tank leader is concerned is direct fire. It would therefore be manifestly invalid to include on this test ten items on indirect fire and only five items on direct fire.

Another requirement of a test is that it be reliable. It should measure a person's abilities in a constant way; the results should not be affected to any great extent by chance factors. In practical terms, a test would be reliable if it were given to the same group of Marines on two separate occasions (not too far apart) and each Marine made about the same score on the second test as he did on the first. Under the heading of reliability, a test should be objective, so that each individual who scores it obtains the same result. Obviously this characteristic is difficult to achieve on a short-answer or essay-type examination in which the scorer must apply his own interpretation to each answer given.

Finally, in view of the large scale of the Marine Corps testing program, it is imperative that in addition to the requirements listed above, a test be relatively easy to administer and score.

In order to meet the requirements of objectivity, reliability, and ease of administering and scoring, the Marine Corps has adopted the multiple choice type examination, in which each "test item" consists of a statement or question followed by four choices or "alternatives." One of these alternatives is known as the "best answer" and the remainder as "distractors." To a certain extent, this type of test is more reliable than others because it measures what an individual knows rather than his ability to express himself. It is objective because there is only one best answer for each item. The same score will be awarded on such a test no matter who grades it since the scorer need not apply his own interpretation to any of the answers. Administering and scoring this type of test is greatly facilitated by use of the standard Marine Corps answer sheet, and by use of punched scoring keys and IBM machines.

Next comes the problem of how to make the test as valid as possible, or how to insure that the men getting high scores on the test are in fact better qualified than the men getting low scores. Here is a point which everyone taking a promotion test should know: in writing a technical test, the test constructor prepares an outline which corresponds as much as possible with the MOS description and qualification requirements listed for that particular MOS in the MOS Manual. It is presumed that a man who is thoroughly familiar with the qualification

requirements for his MOS is better qualified in his job than a man who is only vaguely familiar with those subjects. By accurately covering these areas of knowledge, the test constructor attempts to achieve validity on the test.

On the matter of attempting to achieve validity on GMSTs, the outline covers subjects contained in a list of reference material established by Headquarters Marine Corps, and in general consists of all the basic subjects which every Marine is expected to know.

Now for the actual test construction. Each technical test section consists of one or more officers and master sergeants, known as test construction specialists. In addition to being familiar with the principles of test construction, each of these individuals is required to be well qualified in his own functional field. Normally each test constructor writes the examinations on the subjects with which he is most familiar, applying the rules for test construction which we shall touch upon briefly in succeeding paragraphs. Then, in order to avoid having a test represent the opinions of only one person on the subject, certain individuals who are considered to be well qualified in their fields are called in to review the tests and offer constructive suggestions. These men, usually master sergeants, are known as subject matter specialists.

In the event that no one in a technical test section is qualified to write an examination for a particular MOS for which the section is responsible, a request is sent to Headquarters Marine Corps to have a qualified subject matter specialist assigned to the Testing and Education Unit on temporary additional duty for the purpose of writing the examination in question.

The test construction process begins, as we have noted above, by having the test constructor prepare an outline for each examination, using the MOS Manual as a guide. The outline is carefully reviewed by the chief of the technical test section and then by a member of the coordination and review section, who is generally an expert in the field of test construction. After the outline has been approved, the test constructor settles down to the laborious task of writing test items covering the subjects listed in the outline. Each test item is placed on a card, which should have indicated on it the best answer and the reference from which the item was taken, so that the item may be checked at any time for accuracy.

In constructing the individual test items, the test constructor is guided by certain standards of test construction established as SOP by the Testing and Education Unit. Briefly, some of these standards which the test constructor strives to achieve are as follows:

1. The item should be realistic and practical; that is, it should test subject matter which the person being tested should know in order to perform his job properly. For example, every rifleman should know how to clean his rifle, but it is neither necessary nor practical for him to know the length of the operating rod.

2. The item should ask a question which demands specific knowledge of the job rather than practical reasoning based on general knowledge.

3. The item should stress reasoning based on knowledge of the job rather than on memory. It is more important for a man to know how grid declination is used in map reading than it is for him to know that grid declination is sometimes referred to as "gisement."

4. The item should be neither too difficult nor too easy.

5. No item in a test should disclose the answer to another item in the same test.

6. The item should be phrased in the working language of the man taking the test. I don't mean to imply, however, that the test constructor should use the sort of language that is sometimes employed by mechanics when they run into unexpected difficulties on a repair job, or by cooks when they discover that the beans are burned. But if a tank crewman calls a track connecting fixture a "track jack," the test constructor should refer to it in that manner as well.

7. The question should be stated briefly and concisely, leaving out all irrelevant details.

8. There should be only one correct and undisputed answer. Controversial items, in which practical experience contradicts what the manual says, are definitely to be avoided.

9. The alternatives should be pertinent and reasonable.

Abiding by the above principles insofar as possible, the test constructor writes enough test items to make up a primary and an alternate examination for each MOS and pay grade. Technical tests for promotion to staff sergeant consist of eighty items; for technical sergeant, 100 items; and for master sergeant, 120 items. GMSTs for promotion to corporal and sergeant consist of 100 items, and for promotion to the higher ranks, 150 items.

UPON COMPLETION of the tests in the rough, the test constructor submits the roughs and the outline to the chief of section, who reviews the tests for subject matter, correct spelling and grammatical form, and adherence to the outline. If necessary, he assists the test constructor in revising certain items. Then the tests are submitted to the coordination and review section for final review by test construction experts. After crossing this hurdle the tests are typed on duplimats, printed, assembled, numbered, and stored until time for mailing and administering.

After the tests have been administered, the answer sheets are returned to the Testing and Education Unit for scoring. The scores are marked on the machine record installation cards accompanying each answer sheet, and the MRI cards are then sent to Washington. Headquarters Marine Corps establishes a cutting score for each test and publishes a list indicating who passed and who failed the various tests.

At this point there is a natural tendency for the testing sections to breathe a sigh of relief and erase from their minds everything connected with the tests just administered. Such, however, is not the case. Now begins the rather tedious process of test analysis. By analyzing the results on each item, it is possible to determine which items have successfully performed their function of separating the best-qualified men from those who are not so competent. These items may be used again at some future date. Other items which do not stand up too well under the cold, critical light of statistical analysis must be re-

vised or discarded.

How do we determine whether an item is a good one or a poor one? The most obvious measure is the degree of difficulty of the item. If an item is too easy or too difficult, it doesn't give us much information to go on in our task of separating the qualified from the unqualified men. Another more involved measure is the extent to which the item discriminates between the high scores and the low scores.

To illustrate the method used in determining which items may be used again, let us assume that 100 competitors took a particular test. After scoring the test, we divide the competitors into the highest fifty scorers and the lowest fifty, and make what is known as an alternative count. For each item, we determine how many in the high group answered A, B, C, and D. We do the same thing for the low group. Let us say that forty-six percent in the high group and thirty-four percent in the low group got the correct answer. The overall percentage of competitors getting the correct answer in this case is forty percent which we then designate as the "difficulty" of the item.

By using the percentage of the high and the low groups passing an item, and by plotting these points on the chart shown in Figure 1, we are able to arrive at a mathematical measure of the discriminatory value of the item, .18 in this case. This measure is given the high sounding title of "tetrachoric correlation coefficient," commonly referred to as the "r." If most of the high group passed an item and most of the low group failed it, the item would have a fairly high "r" and would be relatively discriminative in nature. If more men in the low group passed the item than in the high group, obviously the item has failed in its mission of discrimination. An item in this category would have a negative "r."

Now that we have determined the difficulty and the discriminatory value of each item, how do we make the decision as to which items to keep and which items to revise or discard? First of all, items with very high or very low difficulty ratings, or with negative "r's," are discarded. Then items with low "r's," say between 0 and .20, are either revised or discarded. When attempting to revise an item, we analyze the number of responses given for each alternative. An alternative which is not answered by anyone is of no value and must be changed. By carefully analyzing the responses and changing distractors or re-wording or re-phrasing questions, we are frequently able to obtain good correlation on items which formerly were not considered satisfactory. These items may then be used again and again, provided that the analysis made after each time they are used indicates that they are still performing their function of discrimination.

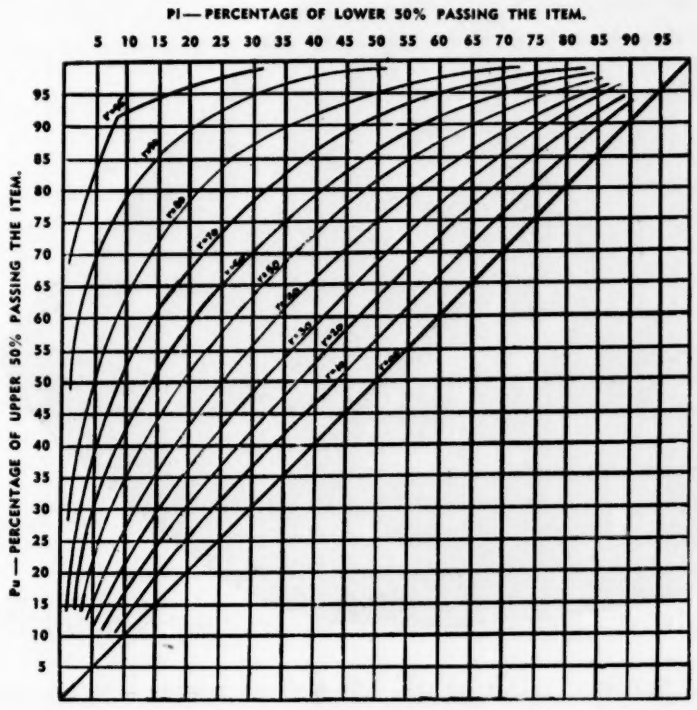


Figure 1

When tests are re-written, a careful check is made to insure that in addition to having good correlation, each item is still applicable and has not become obsolete due to changes in equipment or technique.

As you can see from the foregoing, your Marine Corps promotion tests are not composed of haphazard questions hurriedly thrown together, nor are they designed with vindictive intent to "snow the troops." Rather, they are the end product of careful planning, intensive study, statistical analysis, and endless revision. The test constructors are not college professors whose knowledge of the machine gun is limited to what they've gleaned from FM 23-55. They've used the equipment in the field, cleaned it and babied it, sweated over it, and cursed it just as you do every day.

THE NEXT time you are to take a promotion examination, first of all consult the MOS Manual to insure that you know what is expected of you. Brush up on the manuals and on phases of your job that you don't come in contact with very often. When you actually take the tests, read each item carefully and completely, even though you feel sure of the answer at first glance. When you run into a difficult item, skip it temporarily and go on to the next item, returning to it after you have completed the rest of the examination. Do not, under any circumstances, deliberately omit the answer to any item. With limited knowledge you can frequently make an "educated guess" by narrowing the answer down to two alternatives. You have nothing to lose by guessing, and more power to you if you choose the correct answer. If you discover that your knowledge on certain points is weak, don't hurl epithets at "the fiend who concocted this monstrosity." Remember, instead, that your Marine Corps promotion test has been carefully constructed by qualified representatives in the various fields, under the supervision of test construction specialists, for the purpose of determining how you compare professionally with your fellow Marines. USMC

See it - Report it !

See it - Report it !

See it - Report it !

By Capt Patrick C. Roe

IT SHOULD BE A FAIRLY CLEAR assumption that we are outnumbered. In the Korean war today, and in any operations that we face in the immediate future, we will face far greater numbers than we can count on our side. It has almost become a cliché to introduce articles on current military subjects with this statement and then to follow with a solution for equalizing this disparity in numbers.

Many solutions have been offered. They range in scope from increasing firepower and mobility to decreasing the number of technical and administrative troops. They are important bites out of the problem, but they do not reach the heart of the matter. The first big thing we must do is to learn to use more effectively the combat power we now have. We could increase firepower and mobility until we could shoot faster and move faster than any other military force on earth. However, it would not do one bit of good, *unless* we applied that firepower to the most remunerative targets, and *unless* we used that mobility to concentrate at the critical point at the critical time.

How can we do this? We can do it with an effective combat intelligence system, by fighting with our eyes open.

We are tactically crippled by ineffective intelligence production that can tell us of an enemy attack only after it has begun; intelligence that can determine the enemy weak points only after our initial attacks have commenced.

Our present intelligence system locks the barn door after the horse has been stolen. As an example, think of a defensive situation.

The commander moves his troops into position, disposes them, and commences the organization of the ground. He puts out outposts, sends out patrols, and holds out a reserve to meet later emergencies. The enemy attack commences, the outposts are driven in, and the enemy concentrates his force on one area.

A critical situation develops. Quickly the reserves are alerted and moved into position to reinforce the threatened area or to contain a penetration. But by the time the reserves begin to move the enemy has already stolen the tactical horse, gained the initiative, and the commander is in trouble.

Now, with a better intelligence system, the commander should be forewarned, told where the critical situation is likely to develop. It need only be a few minutes, just so he is tipped off in time to stay out of trouble and keep the initiative. It can be done with an effective intelligence system.

No spectacular displays of last minute information are necessary. All that is necessary is that the commander get enough good information to tip the weight of evidence in favor of one particular course of enemy action. Once the scales are overbalanced far enough in favor of this course of action the commander can afford to commit himself and act on it. He can redeploy his reserve closer to the expected critical point or strengthen a particular point and thus gain irreplaceable minutes in keeping out of trouble.

INTELLIGENCE SHOULD do this. It should tell the commander *where* he can get the greatest return for his tactical effort, and it should tell him *when* he can get the greatest return for his tactical effort, whether it be offensive or defensive effort. Here are four major items the intelligence system should be able to determine:

(1) Significant enemy defensive weaknesses, either current tactical weaknesses or inherent weaknesses of organization and training, that the commander can capitalize on.

(2) Enemy offensive capabilities and objectives, pointing out where critical points will be and when the critical time is likely to arise.

(3) Requirements for reconnaissance forces and security forces including their size, composition, disposition, and missions.

(4) The most remunerative targets for all supporting weapons.

Our intelligence has often not met these requirements. The defects can be attributed to two factors: ineffective doctrine, showing a lack of appreciation of the role of intelligence; and a lack of proper training and application.

The intelligence doctrine should specify three things: the uses of intelligence, the composition and organization of the intelligence system, and the operating methods of the system. Briefly stated, the entire purpose of an intelligence system is this: "To enable the commander to take advantage of all enemy weaknesses and to guard against enemy capabilities." It furnishes information relative to the enemy necessary to plan a tactical operation. Pertinent and timely intelligence will enable a commander to violate intelligently some of the principles of tactics with relative impunity.

A good example of this was the attack south from Yudam-ni by the 5th and 7th Marines in December of 1950. Hill 1581, and its companion across the valley, Hill 1419, dominated the entire valley, affording excellent observation over the route the two regiments would have to follow south. It was estimated that both hills would have to be taken before the movement could proceed.

Hill 1419 fell into our hands after a bitter all-day fight, but the two rifle companies assigned to Hill 1581 never did secure the heights, and after a day and a half of fighting they received a counterattack that drove them from the hill. Nevertheless, the southward movement progressed without serious interference from enemy troops on the hill.

Although it was a critical terrain feature from all normal appearances,

In fighting a numerically superior enemy, greater firepower won't help us unless we know where and when to use it. Up to date combat intelligence can supply the answer

Hill 1581 did not turn out to be so. The reason was simple. The Chinese unit had excellent observation from the hill, but was unable to capitalize on it. The position was beyond small-arms range of the regimental column and the Chinese did not have artillery or mortar support in sufficient amounts to place effective fire on the column. In this instance the tactical principle could be violated because intelligence was able to determine a significant enemy weakness.

In analyzing the functions and operation of a combat intelligence system the key word is "combat." All combat troops are a part of the combat intelligence system, for combat intelligence is produced from the information furnished by the combat troops. It is intelligence produced from the information furnished by the combat troops. It is intelligence produced from the information gained by and through the actions of the riflemen, the machine gunners, the mortar and artillery observers, the platoon, company, and battalion commanders and all their various assistants. It is not intelligence produced by such specialized means as communications traffic analysis, document translation, aerial photo interpretation, materiel analysis, or by spies, or other specialized means. It is the kind of intelligence produced by the infantry battalion and regiment, produced directly by combat, or indirectly through the results of combat.

It is extremely difficult for the battalion and regimental commanders to get a true and clear picture of the enemy situation through combat intelligence. It requires a large volume of detailed information. Collection of this information by the collection agencies is not too difficult, but the transmission of the information, in usable form and in time to be of use, is very difficult. If all the information of the enemy possessed by all the troops in a battalion area was put together at any one time it would often give a very clear picture. That is the problem—getting the information to one point and putting it together. Compare the difficulties of the intelligence officer with those of the operations officer who must keep track of our troops and keep the commander informed of our current situation. The operations officer will probably ask the subordinate unit commanders for front-line and situation reports each hour, and may get the reports each three hours. Even so, he has trouble keeping track of our troops.

But the intelligence officer is trying, through the intelligence system, to build up a similar picture of the enemy. He doesn't have direct radio contact with the enemy commander. In fact the enemy is probably making every effort to conceal his location and dispositions. The intelligence officer must piece together his picture of the enemy situation from fragmentary and incomplete bits of information, and from negative and inaccurate reports. The system needs a large volume of detailed information to build this picture. Information requirements are listed in the intelligence plan and in specific orders for collection, but they change rapidly and often cannot be foreseen. The only solution is a well organized system, composed of thoroughly trained personnel who know what to look for and how to report it.

To analyze the intelligence system systematically, to learn the way it should work, let us look at the sources of information and the agencies needed to collect that information. The primary sources of information are nearly always the enemy and the terrain. To collect this information we must have collection agencies in contact with the enemy and the terrain. The three main agencies for collecting information, for making contact with the enemy, are: (1) the close combat forces; (2) the security forces; and (3) the reconnaissance forces. These three agencies come into contact with the enemy and collect information. In addition to the collection agencies we need two more elements in the combat intelligence system. We must have a communication system for the transmission of the information, and a central agency, a staff, for the evaluation, interpretation, and synthesis of the information, and to supervise the overall functioning of the system. Altogether these elements will make up an effective combat intelligence system. To understand a little more of this system let us take a look at the

Forward observers should be on the team

collection agencies—the nature of their capabilities.

The first, and most important collection agency is the close combat force — the rifle companies and their attached artillery and mortar observers.

The mission of the rifle company is to close with the enemy and destroy or capture him by close combat. When engaged, the troops of the rifle company execute battle reconnaissance, set up observation posts, and fire at and are fired upon by the enemy. They capture prisoners, overrun positions, and collect enemy documents and materiel. From the rifle company and its attached units comes the major portion of the information making up combat intelligence. Yet it is here that we find the weakest element in the intelligence system. It is not weak from a lack of information or a lack of ability to collect information, but weak from a failure to pass on that information quickly and in usable form. The company has the information. The company commander and the platoon commanders collect and produce a certain amount of intelligence for their own use, but they need to pass it on.

A rifle company commander in combat is a busy man. He is oriented toward the needs of the company; oriented toward getting the units on their objectives with the smallest number of casualties. He is looking for enemy weaknesses that he can use but he is not, at that time, concerned with passing on the necessary information. He has it, but he hasn't the time to pass it on to battalion. But the rifle company commander has some help. He has his executive officer, usually working in the company CP and supervising the work of the first sergeant and the property sergeant in supplying the company and in evacuating casualties. The captain has a gunnery sergeant to help him in checking positions and in supervising and controlling the movements of the company. He needs one more man to help him, and to help the battalion. He needs a scout sergeant to help him plan and execute reconnaissance, to collect information and to pass it on to the battalion, relieving him of that arduous but necessary task. With that assistance, the rifle company can become an important element in the production of combat intelligence.

On-the-spot reporting is vital

The attached observers for supporting arms, mortars, artillery, air, and naval gunfire are in a similar position. They are forward in the combat area where they can keep the enemy under constant observation and fire. They generally have excellent communication facilities for controlling this fire and they can be used also for the job of reporting information of the enemy. But here again they are limited as collection agencies by the demands of their primary mission. They are also handicapped to a certain extent by a lack of training in this secondary mission. But not all supporting arms are shooting at once so their observers can be used to a limited extent to cover the unit front, and as such they form a valuable part of the collection system.

The second major element of the collection system is the security force. The general mission of all security forces (outposts, roadblocks, flank guards, and so on) is to give timely warning of enemy attack and to gain time and space for maneuver. They also function as a counter-reconnaissance screen to deny the enemy information of our own movements. The factors determining the size and location of the security elements are the imminence of enemy attack and our own state of preparation for that attack. With adequate security out along the various avenues of approach we have forthcoming continuous and timely information of the enemy's approach. The security forces also provide information of the enemy's reconnaissance activities, valuable indications of enemy plans. Generally the reports of the security elements will not be conclusive indications of the direction and size of the main enemy attack, for the enemy may make diversionary attacks, but when coupled with information produced by the other collection agencies it will form intelligence on which a commander can afford to act. The security forces are then an agency that comes into contact with the enemy.

The reconnaissance forces, such as they may be, are the third collection agency for the system. The reconnaissance system is a basic part of the intelligence system for, in a way, all the information of the combat intelligence system is information produced by reconnoitering forces whether they be reconnaissances in force or reconnaissance patrols. Reconnaissance is a mission that requires specially

trained and equipped troops to perform it adequately. This principle is adhered to at division and corps level where specially organized and trained reconnaissance units are provided. It is a principle that should be applied in the Marine Corps at battalion and regimental level. Each unit should be provided with the necessary reconnaissance forces to execute deep reconnaissance. There should be reconnaissance at least as far as the assigned objective or just beyond the immediate striking range of the unit. (What would be deep reconnaissance for a battalion certainly would not be deep reconnaissance for a division.) Each commander should have organic to his unit the facilities necessary to produce intelligence for his own use, and a reconnaissance unit is one of these. The riflemen from the rifle platoons do not have the necessary training, nor will they generally be in sufficiently good physical condition, especially after a couple of weeks in the line, to perform ticklish reconnaissance missions. At least a squad of scouts is necessary for a battalion, and a platoon for a regiment. They will not be able to perform all the reconnaissance necessary, but, when supplemented by others, they can insure adequate coverage of the unit front.

To tie in these collection agencies of the intelligence system we need a good communication system. This means not only the mechanical and electrical means of communication, but also the methods of reporting, of actually conveying thoughts between persons. This will depend largely on the individuals, their state of training, and their resourcefulness. For communication within the intelligence system there is provided a radio net between battalions and regiments and between the regiments and the division, but below battalion level communication difficulties are encountered because of the relative speed of movement of these smaller units. But at battalion level and below, rapid communication assumes even greater importance than at higher echelons. For here the relative distances are shorter and the time between warning and attack is correspondingly less. Whatever the means — wire, radio, or runner, the communication system has got to be able to transmit the detailed information rapidly.

The last element of the intelligence system is the intelligence staff—the intelligence officer, his assistants, and a certain limited number of specialists. This is the control center of the intelligence system, and here is where the intelligence is actually produced and formed into a comprehensive picture of the enemy. If the collection has been detailed and thorough, and information has been transmitted rapidly and clearly, it will not be too difficult to put together a fairly clear picture of the enemy situation. The intelligence staff will have a few specialists to add to the information gained by the combat units. They will have, perhaps, aerial photo interpreters, language personnel, and order-of-battle personnel. Supervising the system will be the intelligence officer. He will supervise the work of the staff personnel and will interpret and evaluate the information reported. He will supervise the general operation of the system and will coordinate the intelligence activities of the command with the other efforts. In addition, and perhaps most important, he will make recommendations to see that the intelligence produced is put to most effective use.

THAT IS THE SYSTEM: the collection agencies, the communication system, and the staff. Now let us see how it might operate. The basic principle of the entire intelligence system is continuous operation, continuously keeping the situation up to date. The collection agencies are operating continuously, getting the needed information and passing it on through the communication system. As the situation develops, the emphasis is shifted from one collection agency to another. The collection effort has three fairly distinct phases, similar to the phases of offensive combat, but the phases of the collection effort are the same whether you are on the offensive or defensive. As contact with the enemy grows more imminent, the major collection effort shifts from the reconnaissance forces to the security forces and finally to the close combat force.

During the first phase, when contact with the enemy is remote, the collection of information depends primarily upon the reconnaissance forces. They orient themselves toward the enemy, moving forward on deep reconnaissance missions, and attempting to make contact with the enemy. During this phase of operations, the reconnaissance forces would operate beyond supporting distance of the main body. They would operate along a broad front over several different, but generally parallel, routes. This is the phase that demands a combat patrol. For with a large area to cover, the reconnaissance forces must operate aggressively to cover the ground. Their primary job is to find the enemy force, make contact and establish the enemy's location, keep the enemy under observation, and pass on the information to the intelligence system. They will run into trouble with the enemy counter-reconnaissance screen; so their information, even under optimum conditions, will not be complete. But it is the beginning of combat intelligence production.

They must maintain contact, for it is only through contact with the enemy that combat intelligence gathers its information. It can either be visual contact as in the case of observation posts and reconnaissance patrols, or it can be actual combat as in the case of combat patrols. But through contact with the enemy his forces can be observed, prisoners taken, weapons located, and his strength estimated. Contact should be established as early as possible and maintained as long as possible; and it is up to the reconnaissance forces to establish this initial contact, and to maintain it when the enemy attempts to pull back from the reach of the close combat forces.

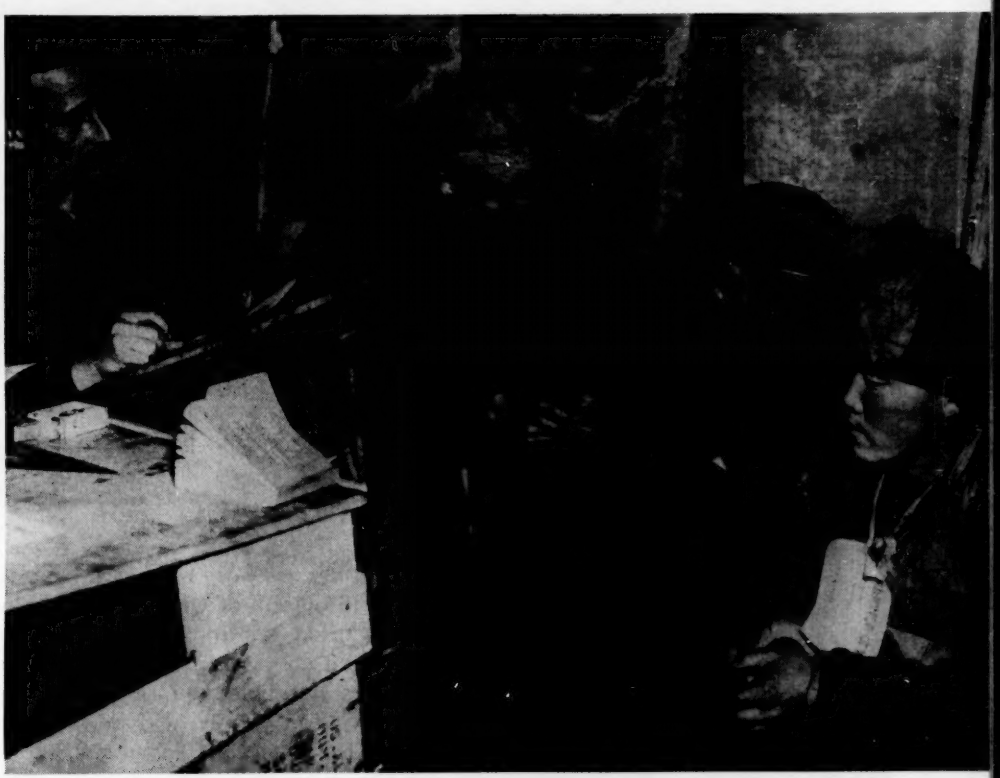
Marine infantry units pursuing the North Korean forces north from Seoul in early October of 1950 had trouble maintaining contact with the withdrawing enemy. During the day the enemy would fight strong delaying actions. At the end of the day, when the objective had been seized and the Marine units had established a defensive position for the night, the North Koreans would withdraw to new positions under cover of darkness. The next morning the attack would jump off against no initial resistance. Valu-

able time would be wasted by units cautiously probing forward attempting to regain the contact lost during the night—contact that could have been maintained throughout the night by reconnaissance patrols. This points up the fact that during the time when the main body is not engaged with the enemy, the reconnaissance forces should be able to keep the enemy under observation and maintain contact.

IN THE SECOND phase of the intelligence collection effort the security forces come into play. The enemy is nearer, contact becomes imminent for the main body, and the security forces take the enemy under observation and fire. The reconnaissance forces now shift their operations to the enemy flanks or to gaps between the security forces. The security forces are oriented toward the unit which they screen. Whether in the attack or the defense, they act aggressively and attempt to overcome small enemy bodies. In the attack, they attempt to overcome enemy outposts, and in the defense, they drive off enemy patrols. If the enemy force is too large for them to handle the security forces withdraw toward the main body, keeping contact with the enemy as they do so and reporting his action, size, and strength. If they have done their job the commander will get the timely tip-off he needs. And when the information supplied by the reconnaissance forces is coupled with the information from the security forces the commander can be fairly certain of the enemy's strength and intentions. He can afford to act before his entire body is committed.

The last phase of the collection effort commences when the close combat forces establish contact with the enemy. All of the collection agencies are still present and operating but now the majority of the information will come from the close combat units. The companies are executing battle reconnaissance, taking prisoners, overrunning positions, and operating observation posts. From the information fed into the intelligence system by the close combat units the commander can determine the significant enemy weaknesses. He can determine the most opportune time and place to commit his reserve. By the actions of the commander in reinforcing them or assisting them with fire, the close combat forces gain directly from the information they have collected and reported. At this time the reconnaissance and security forces are ready to shift into operation and take up the mission of maintaining contact with the enemy should battle slacken. In the meantime, the reconnaissance forces are still active, probing the enemy flanks, or, through gaps in the line, constantly searching for information.

WITH THE SYSTEM established and operating efficiently, intelligence agencies can achieve the maximum possible effect. They can increase the combat power of the unit by allowing it to be placed at the most effective point at the most effective time. It is fighting with your eyes open, for the intelligence system is acting as the eyes of the commander. There are weaknesses in our system as it now stands, grave weaknesses that need to be remedied. We need more coordination, more reconnaissance, and a better appreciation of the capabilities and functions of combat intelligence. In our training we must stress how intelligence can modify our evaluation of the terrain, and enable us to get the maximum from our combat power. We need to show how the intelligence system determines the enemy locations, strength, and disposition. We should learn that we are fighting the enemy forces, not the terrain; that the terrain is only a means to the end. All too often we make our plans according to the terrain, not according to the enemy dispositions. For so many times we do not have enough information of the enemy to base our plans on the enemy alone. With effective combat intelligence we can do it. We should know where to place the weight of our combat power, for we cannot be equally strong everywhere. And if we can multiply our combat power through the use of intelligence we have taken the greatest step possible toward meeting, on an equal footing, an overnumbering enemy. USMC



They can help fit the pieces

in brief

Quadrangular organization is being tried out at Camp Pendleton and Camp Lejeune. The experiment began earlier this year when a fourth battalion was added to the 4th Marines of the 3d Mar Div and the 8th Marines of the 2d Mar Div. The test replacement of triangular organization will continue for about a year. Quadrangular organization was common during World War I, but most services changed to triangular structure in the 1930s.

"Fix bayonets!" is a familiar order to members of the Turkish Brigade fighting with United Nations units in Korea. Pvt Cemil Sner is shown testing the sharp edge of his bayonet, which has accounted for a number of Communist soldiers in recent months.

United Press

Claims covering loss of personal effects by deceased Navy personnel before July 3, 1952 must be submitted by their survivors no later than July 2, 1953. Where death and loss occurs after July 3, 1952, claim must be made within two years. There is a $2,500 limit on any single claim.

An advanced model of the North American Fury is in production at the company's Columbus, Ohio, plant prior to delivery to Navy air units. The FJ-2 has a range of 1,000 miles, and is armed with four 20mm cannon.

Communications repairmen will soon have a new tool to mend broken wire in the field. The lightweight wire splicer, developed by the Signal Corps Engineering Laboratories at Fort Monmouth, N. J., is expected to save time on the battlefield when telegraph and telephone lines are cut or broken. The new tool also insures a perfect connection every time.

Summer training will again be offered to officers of the Volunteer Marine Corps Aviation Reserve. Three advanced courses, in the fields of aviation maintenance, aviation ordnance, and aviation supply, will be conducted at the Aviation Technical School at Quantico from July 6 to 17. Personnel desiring the training should apply to the Commandant of the Marine Corps via cognizant reserve district directors before June 1, 1953.

A MAG-24 Marine stationed at Cherry Point took advantage of a thirty-day leave to participate in the rodeo at Madison Square Garden. Cpl Harry J. Conners was a "bronco buster" before entering the Marine Corps.

Chinese Nationalist Marine Corps Commandant, MajGen Chou Yu-huan, and other high-ranking Chinese Marine and Navy officers toured U. S. Marine bases last month.

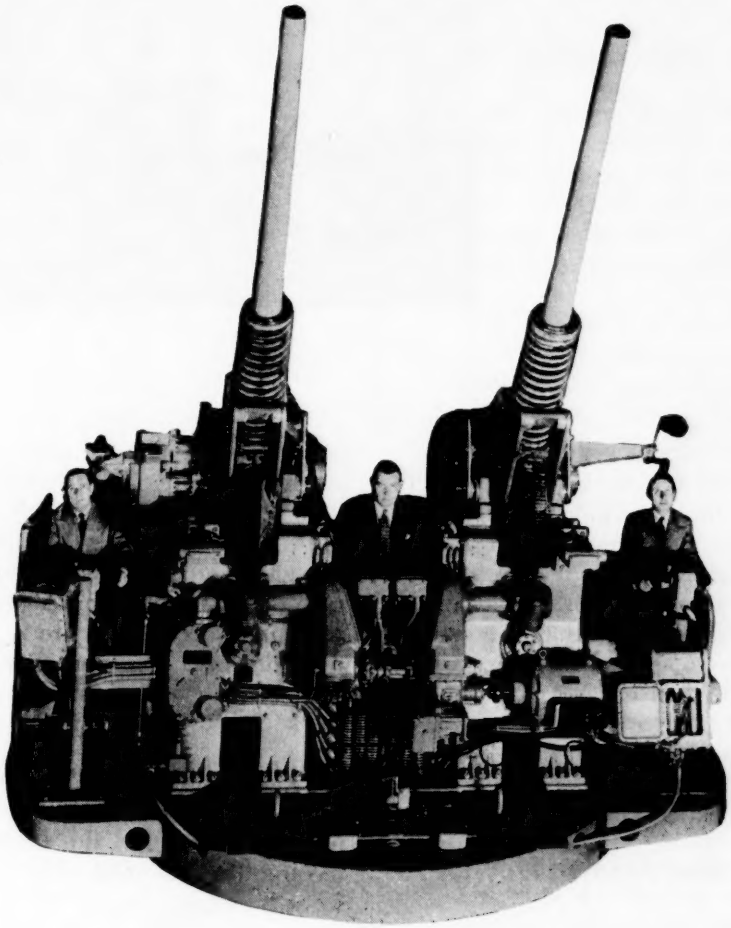
Activation of the 1st Marine Provisional Air-Ground Task Force has been accomplished at the Marine Corps Air Station at Kaneohe Bay, Hawaii. A battalion landing team with supporting units from the 3d Mar Div at Camp Pendleton and air units from MAG-13 at El Toro make up the task force. Plans call for rotation of units between Hawaii and the mainland every six months. Another battalion landing team from the 3d Mar Div recently completed cold weather maneuvers in the Pickle Meadows training area.

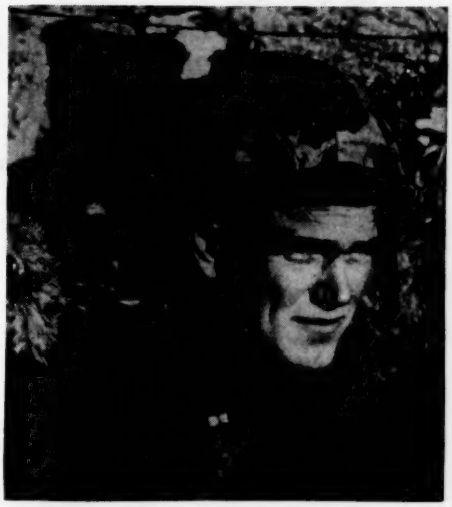
The Smithsonian Institute will soon be the scene of a permanent Marine Corps exhibit. The Commandant has requested all units to determine what historic items are in their possession. Private sources holding material pertaining to Marine history will also be asked to contribute items on either a temporary or permanent basis.

Additional protection for Marines in the form of the new armored kidney and lower abdomen protector has been introduced in Korea. PFC Thomas F. Prendergrast (left) commented, "It looks like a diaper," as he and PFC Rollin C. Ball looked over the new garment.

An improved insulated boot is being tested in Korea by the Army. The new footgear, called the Thermo-Dry boot, uses synthetic rubber for its insulation rather than the fleece and felt in the present standard boot. Army Quartermaster procured about 1,500 pair of the boots for field testing, with most of them slated for Korea. The new boot is ten per cent lighter in weight than the present model. The Army is also testing the boot and other cold weather gear on Mt. Washington, N. H., the highest peak in northeastern United States.

An electronically-controlled gun mount, equipped with automatic loading devices and intricate radar fire-control systems, has been developed by the Firestone Rubber and Tire Company. The three-inch, twin-fifty gun mount weighs seventeen tons, and was designed for the Navy.





Winter in Korea can get cold, and why walk when you can ride? Sukoshi, mascot of Able Co, 1st Marines, takes a ride in Sgt Thomas F. Bowman's parka to prove the point.

Service basketball is witnessing its finest season in years, and the Quantico Marines are the talk of the nation. Led by Paul Arizin, former professional star, and a host of other talented hoopsters, the Quantico five boasted twenty-nine wins in thirty-one starts at press time. Among their victims were the professional Philadelphia Warriors, last year's AAU and Olympic champions, the Peoria Caterpillars, Syracuse U., and Villanova.

LEFT FLANK AT IWO

IN THE HISTORY OF WARFARE, HILLS and ridges appear again and again as focal points of combat. Such names as Bunker Hill and Bloody Ridge stand on the pages of our own national history. Perhaps the best known to living Americans is Mt. Suribachi because of its connection with the famous flag raising picture. Most people know that Marines took Suribachi; most Marines know that the 28th Marines of the 5th Mar Div did the dirty work. Few know, however, that one of the toughest tasks that the 28th faced was a hill called 362 and the defensive maze facing the 5th Mar Div on 1 March 1945.

Hill 362 was the key feature on the right of the main Japanese cross-island defensive position at Iwo Jima. A nightmarish piece of terrain to attack, this area cost the 28th an average of 240 casualties per day in three successive days of severe fighting, whereas Suribachi had exacted an average of 213 per day over the period D-day through D+3. But that's getting ahead of our story.

The major aspects of the Iwo assault have been dealt with at great length elsewhere. Let it suffice here to state that by evening of D+9 (28 Feb) the V Amphibious Corps had ploughed into the northern defenses, with the 3d Mar Div making the main effort in the center (Figure 1). At this time the 27th Marines (elements of the 26th attached) was in line on the left flank south of 362, where the 28th was to effect relief the next morning.

This brings us then to the main point under consideration, the attack upon Hill 362 and the surrounding terrain. In analyzing this operation we will examine briefly the troops in-

By Maj Fred E. Haynes

The courage and initiative of small units made it possible to take Hill 362—backbone of the enemy defense on Iwo

volved, the terrain and enemy defenses, and the operation itself.

The 28th had been formed officially on 8 February 1944, one year and eleven days before hitting Green Beach at Iwo. Officers and men were a mixture of paratroopers, Marine Corps Schools personnel, and just plain Marines. Many were combat veterans. The regimental commander (Col H. B. Liversedge), the ExO (LtCol R. H. Williams), two of the three battalion COs, eight of the company COs, and about fifty per cent of the principal staff officers had fought in earlier actions throughout the Pacific.

In developing the combat team, primary effort was put into small unit training. The colonel's idea of training was based on the philosophy that if you had eighty-one good rifle squads you had the makings of a top notch regiment. This is not to say that other phases of training were neglected, but the emphasis was on small unit training. This paid off handsomely, because Iwo was a battle in which the lower units did most of the maneuvering. In fact, maneuver was largely limited to the company and below. That certainly was the case with respect to Hill 362.

At any rate, by D-day the 28th had a year's training under its belt and was in excellent shape for its first (and last) battle. However, this picture was somewhat changed by the time the regiment hit northern Iwo. Going into the line on D+10 (1 Mar 45) percentages of original strength were as follows:

1st Bn: 38% officers, 68% enlisted.
2d Bn: 62% officers, 64% enlisted.
3d Bn: 59% officers, 61% enlisted.
(Approximately three officers and ninety enlisted replacements were received by each battalion 27-28 Feb)

WHILE THIS STRENGTH situation was not too gloomy, it should be borne in mind that many platoon, squad, and fire team leaders had been removed from action and that only half of the original company commanders were effective. However, morale in the unit was high. All hands had had a few days respite from heavy fighting and there was a general feeling of pride in having taken Suribachi. Therefore, all things considered, the 28th was fairly well prepared for the show going on in the northern half of the island.

Northern Iwo was a treeless wilderness of cave-studded, jagged, frequently ill-defined compartments radiating from a central plateau toward the coastal cliffs. The terrain with which we are most concerned, that around Hill 362, constituted the right (west) one-third of the main cross-island position. It dominated the western side of the island south to Suribachi (see Figure 2). To the immediate front of the 28th's line of departure was a ridgeline dominated by Hill 362 on the right and descending toward the west coast where it dropped to the sea. The right half of the feature was the more rugged, being cut transversely in several spots and characterized by rocky outcrops. This ridge formed the southern boundary of a major terrain compartment, 180 to 200 yards wide from the north base of Hill 362 to ragged Nishi Ridge which formed the northern boundary of the compartment. Beyond, and running parallel to the compartment just described, was a second compartment almost as rugged and providing considerable depth to the Japanese position.

The floor of the first compartment was cut by an antitank ditch running north from Hill 362 and ending at the base of the opposite cliff line. Covering the ditch and the approaches around the sides of the hill were a heavy covered emplacement to the right of the far end of the ditch and a considerable number of caves in the south face of Nishi Ridge and the north face of Hill 362.

The overall effects of terrain and defenses were that: (a) the 28th would have to attack over two rugged cross-compartments with extensive defenses on forward and reverse slopes; (b) naval gunfire, air, and artillery support were of limited utility; and (c) tanks could not easily be maneuvered into advantageous support positions.

The battle map gave an erroneous (and much happier) picture of this terrain, and aerial photos were mostly small scale and of pre-invasion vintage. Further, ground reconnaissance beyond the front line was impossible. Thus a terrain estimate was difficult. Likewise, little was known of the defending force, for prisoners were few and useless. It is my opinion that

about a thousand Japanese held the position.

The fight through this intricate arrangement of terrain and defense positions was a slow, methodical, sometimes heartbreaking proposition. To describe the action in detail would be to belabor this point. Therefore we shall examine only the major aspects of the operation. (See Figure 3.)

The assault echelon consisted of all three battalions, 1st (LtCol J. B. Butterfield) on the right, 2d (LtCol Cheney Johnson) in the center, 3d (LtCol C. E. Shepard) on the left. The 2d Bn, 13th Marines was in direct support. A 37mm AT platoon and an engineer platoon were attached to each battalion throughout. The rocket detachment was with the 1st Bn on 1 March, with the 2d on 2 March. The 75mm halftracks were retained under regimental control and employed wherever opportunities appeared. Tank support was provided alternately by all three companies of the 5th Tank Bn.

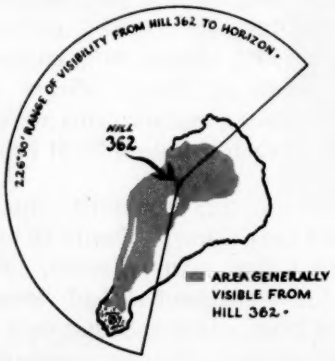
On 1 March the 28th moved through the 27th Marines under cover of a forty-five minute pre-King hour bombardment toward the first objective—362 and its ridgeline. By 1000, assault companies were well up the southern slopes and enemy rifle, machine gun, and mortar fire was increasing. (Here it should be stated that the previous attacks of the 26th and 27th Marines had eliminated much resistance to the immediate front of the 28th. I Co, 3/27 had almost gained the crest of 362 the afternoon of D+9, but had been withdrawn for security reasons.)

By 1230, the 1st and 2d Bns gained the crest of 362 and the ridgeline, while the 3d methodically reduced the coastal cliff positions. Withering fire emanated from Nishi Ridge and the Japanese positions beyond. At this stage of the fight it was discovered that the north and northwest face of 362 was a sheer ninety-foot cliff dotted with caves and impossible to scale under the circumstances. (See Figure 4.) It was then determined that the only feasible method of reducing the hill would be by a double envelopment, the right thrust coming from the 1st Bn, the left from the 2d.

Accordingly, LtCol Butterfield committed A Co around the right to destroy positions in the north cliff line, while LtCol Johnson ordered D Co to work its way around the west and northwest cliffs, reducing the caves one by one. Covering fire from artillery and the other troops along the front was thrown on Nishi Ridge across the compartment.

A Co moved out about 1330 and was met by severe small-arms fire. Wilkins, last original company commander of the 1st Bn, was killed. Nevertheless, the company succeeded in finishing off several positions and continued to work forward along the cliffs until a local counterattack of about a hundred Japanese against the 1st's right put a temporary halt to proceedings.

D Co was likewise hit by the concentrated fire from across the compartment, also from the caves in the northwest face of 362. Attempts to bring tanks into effective firing positions were thwarted by difficult terrain and the AT ditch extending north from the hill. Assault teams tried to cross the open ground, only to be hit. Casualties piled up and the fire became so hot that they could not easily be removed. Finally night approached and the attack had to be called to a halt in order to tie in the lines to ward off the usual nocturnal infiltration attempts.



AFTER DARK, dead and wounded were sneaked out from around the hill; and, as the regiment licked its wounds in the light of the Navy's illuminating shells, thoughts of the morrow were none too encouraging. Losses had been heavy, 200 in the 1st and 2d Bns combined, and twenty-five in the 3d.

Next morning the attack rolled at 0800 with twenty-five minutes of preparation fires. The first object was to polish off Hill 362 proper, then to move on to Nishi Ridge. On the extreme flanks the advance commenced without too much concentrated enemy resistance. In the center, however, the story was not the same. The enemy had

FIGURE 2

Southwesterly View from atop Hill 362

remained in his positions around 362 apparently intent on holding to the last man. In the 2d Bn zone, F Co had relieved D Co in assault; E was still on the left. Both companies moved forward slowly, destroying small cave entrances, trying to work into the draw and across. Casualties mounted. The attached 37mm platoon brought up three caliber-50 machine guns and gave their support to F Co. This helped, but not enough. Tanks were the only answer. To get the tanks in, a path had to be prepared and the AT ditch rendered negotiable. An armored bulldozer came up and went to work. While this work was going on, LtCol Johnson was killed, command of the 2d being assumed by Maj Thomas Pierce.

Between 1200 and 1300 the dozer had cleared the way and several tanks moved in for the kill. As the tanks brought their weapons to bear, F Co rushed across the draw. This gallant move broke the back of the defense, for although the unit suffered heavily from frontal and flanking fire as well as fire from the rear, it managed to hang on to the opposite ridge and enable D Co to swing around to the right and reduce the west and north face of 362 to impotence. (See Figure 5.) As this critical action was progressing, 1st Bn with the aid of tanks was well on its way to domination of the east section of Nishi Ridge through the sliced-up terrain in its zone, while on the west the 3d Bn continued to press forward.

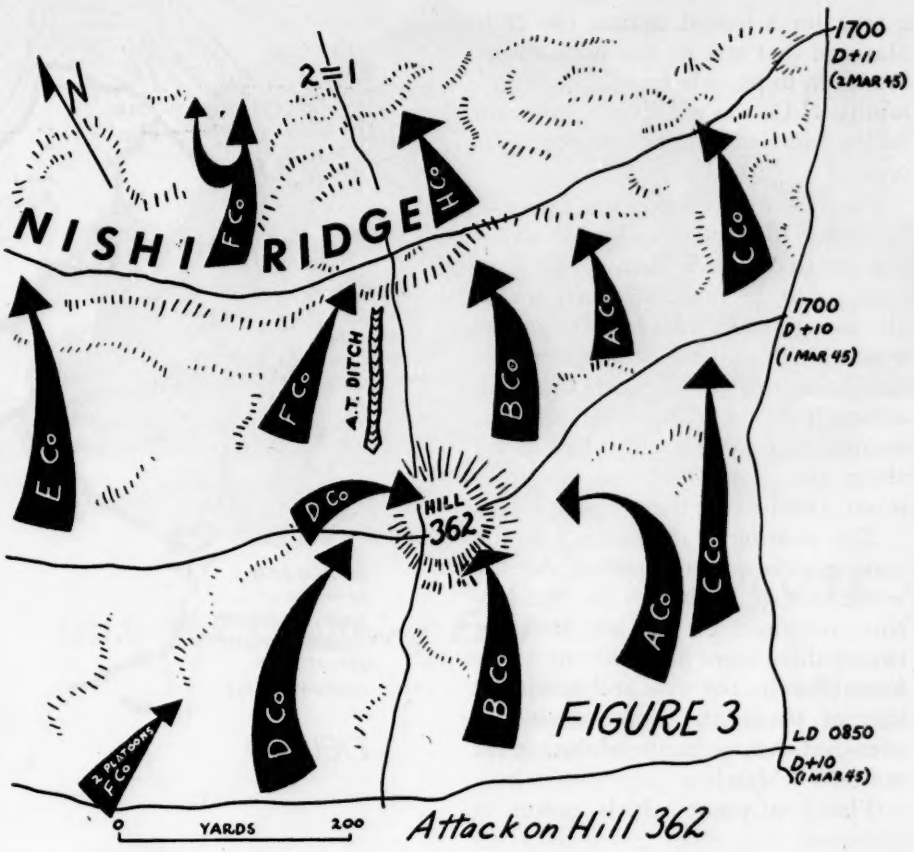


FIGURE 3
Attack on Hill 362

Nine hours after the attack had commenced, Hill 362 and most of Nishi Ridge were in Marine hands. The backbone of this defense sector had been thoroughly cracked; crushing a few more ribs would collapse the structure.

Casualties had been heavier than on the day before — a total of 250 in the three battalions. It was a very thin line that held the front on the night of March 2d. If there was ever

Tanks brought their guns to bear — Fox Co closed in

a time for a banzai against the 28th Marines, that was it; but none came. However, to provide for such an eventuality, H Co was withdrawn from the 3d Bn and stationed behind the right center.[1]

The task for 3 March was a simple "continue the attack." The first objective was to finish off Nishi Ridge, then push on to the next ridgeline, gradually swinging the attack to the northwest. There is little to be gained by examining this day's fighting in detail, although it should be stated that resistance was more evenly distributed along the front and not quite so severe, considering the ground gained.

The evening of 3 March saw the main northwestern Japanese defense sector broken. Although the 28th Marines remained on the left flank for twenty-three more days, the enemy defense effort to the west and northwest side of the island never again approached that encountered during the period 1-3 March.

The first point which comes to mind is that of reconnaissance. Was there any way of providing more terrain and defense information than the 28th had prior to the attack? The answer is affirmative. Tactical air observers could have been asked to take a close look, or better still they could have reported voluntarily on such features as Hill 362. Certainly a helicopter would have been a handy vehicle for reconnaissance in a situation of this sort. In addition to visual aerial reconnaissance, up-to-date low-level obliques and verticals of the area would have been valuable.[2]

Would this additional information have caused a change in plan of attack? The answer here is a qualified negative. The general plan would have remained about the same, although the provision for a local envelopment of 362 could have been made in advance of K-hour, 1 March.

It appears, however, that it would have been more sensible to attack down the compartments toward the sea thus turning them from cross-compartments into corridors. This would likely have been a more rapid method. This contention is partly upheld by the fact that when the 4th Mar Div on the corps' right flank came into position parallel to the east coast, it swept to the sea. It must be said in fairness to the other side of the question, however, that several hundred Japanese had given their lives in a strong infiltration attempt against the 4th shortly before that division's push to the sea, thus contributing to the ease with which the move was made.

Lack of additional troops made it impossible to conduct one or more "sweeping" operations down the corridors toward the sea. This situation came about because of the rapid extension of the corps' line by the 3d Div's northern penetration. More and more units had to be put in action to maintain coverage of the front. And maintenance of a line was unquestionably essential. Had the 28th concentrated to attack from the eastern end of the terrain compartments toward the sea, little force, except temporarily exhausted units of the other regiments, could have remained with which to secure the corps' extreme left flank.

The Japanese organization of this

"Continue the attack"

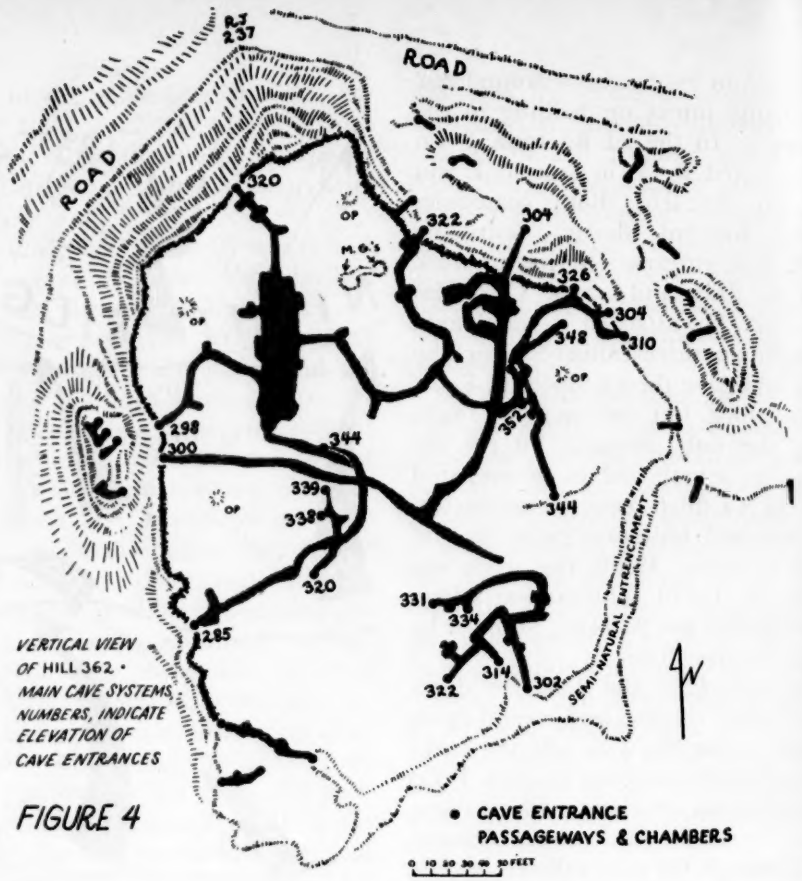


FIGURE 4

[1]3d Bn, 27th Marines was attached to the 28th, but could not be committed to the attack without specific permission of the division commander. It would, however, have been used to stem a banzai attack.

[2]The problem of providing current aerial photo coverage to assault units was of course not peculiar to this regiment or operation.

defense sector was excellent. The cave system here was not nearly as vulnerable to naval gunfire, artillery, and air as it was in the Suribachi area. Tanks were by far the best supporting weapons. But the defense was in a sense static; and even though it be in great depth and tenaciously conducted, a static defense is a losing proposition in the long run.

Another point worthy of comment is that realistic, aggressive, small unit training is the best insurance a unit can have for winning a closely contested fight wherein major supporting weapons are of little immediate value. Although casualties in the companies of the 28th were running well above fifty per cent by the evening of 1 March, the training and esprit of the still-effective men and junior officers carried them through. Initiative shown was remarkable, to say the least. In this connection it is worth noting that

FIGURE 5

HILL 362 · *Looking East*

Casualties — 240 per day

the Marine Corps has always maintained this view of moving forward even when supporting arms are relatively ineffective, so long as the mission requires it. For the past few years, however, more and more emphasis has been placed on coordinated use of supporting weapons. This emphasis is correct and is essential doctrine for the conduct of the assault operation. But there is a distinct and increasing danger that U. S. forces may become too dependent on heavy support. It is one thing to be "support-conscious" and utilize supporting weapons to the fullest practical extent, entirely another to become "support-dependent" and be reluctant to attack simply because support is at times ineffective. We must never forget that.

Here then in the long history of battle is another instance which illustrates that courage and initiative are the prime qualities of the soldier. To the rifleman, battle is more than a long march and tactical maneuvers climaxed by the assault from close quarter. It is rather a matter of survival and the will to move forward. And in the last analysis the bulk of the credit for making the Marine Corps what it is today belongs not to the press agent (as some outsiders seem to believe) or the amphibious theorist, but to our indomitable body of infantry that has for 177 years met the enemy on grounds of his own choice and never failed. USMC

RUSSIA'S A

Part I told of a Russia rich in ma

PART II

THE STATUS OF AGRICULTURE IN the Soviet Union, as in any other great nation, is of major importance. As Prof. Karl Haushofer used to put it bluntly to his students in the Institute of Geopolitics, "People must live; they must have their grub." It's agriculture that gives the Soviet people their "grub," and it's the Soviet agriculture that will, in large measure, decide how well or how poorly the nation is fed in the future. From the strategic standpoint this is important, for a nation's staying power in war is in large measure determined by the degree to which that country's agriculture can support a war effort.

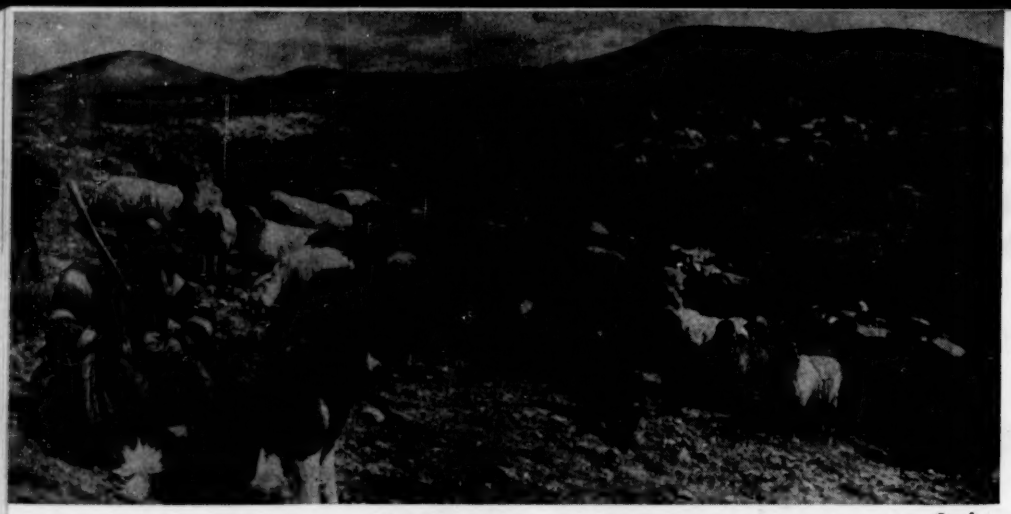
In the Soviet Union, as in any other great nation, landform and soil fertility, coupled with rainfall, sets the basic pattern for agriculture. Just to add to the examples of how fundamentally the Soviet Union differs from the United States, it should be pointed out that, while North American soil zones run generally north and south, Russia's soil zones, due to climatic conditions, run generally east and west. By far the best soils are in southwest Russia. There in the Ukraine are found the rich black chernozems, most productive soil type in the world. It is these highly productive soils, developed under the grasses of the Russian steppes, which are the foundation of Soviet agricultural production. The critically important chernozem soil zone is formed much like a giant wedge, with its broadest area in the southwestern Ukraine and tapering toward a poorly defined point to the eastward, where the zone disappears in the more arid wastelands of central Soviet Asia. In the Soviet Union, the rich chernozem soil

'S ACHILLES' HEEL

By Col J. D. Hittle

rich in materials and strong in population reserves. Here her weaknesses are revealed

MAP I



Sovfoto

Ferghana valley—clothing and food on the hoof

area totals about one million square miles, or about four times the total for the similar soil area in the United States.

Strategically, the chernozem zone of the Ukraine is of major importance to Russia in peace or in war, for it provides twenty-five percent of the cultivated area of the Soviet Union. Its importance is even greater, for in this soil zone is produced, for example, ninety percent of Russia's sugar beets and seventy-five percent of her wheat. From the standpoint of food alone, loss of effective Soviet control over the Ukraine, with its rich soils, would be catastrophic to prolonged all-out war effort by Russia.

Any nation planning military operations in the Soviet Union would have to pay particular attention to the problems created by the extensive permafrost that extends under forty-four percent of all Russia. This permanently frozen subsoil area, which, depending on the season, may extend from the surface to hundreds of feet deep, would present real problems in practically every form of military engineering from airfield construction to field sanitation, and from road building to digging foxholes. Even in the hot summer weather of central Soviet Asia, rock-hard frozen earth can be found a few feet beneath the surface. The military implications of the Russian permafrost are important and numerous, calling for special engineer techniques.

Here are some basic facts on the scope of agricultural activities in the Soviet Union: Due to climatic and landform limitations, the arable land amounts to about 432 million acres, which is close to eight percent of the total Soviet area. Meadow and grassland totals 268 million acres, or about five percent of the total area. By combining these figures, we have a grand total of close to 700 million acres, or about thirteen percent of the Soviet area devoted to agriculture in some form.

In agriculture, as in population, the important area is that west of the Urals. Not only is the bulk of the Soviet population in this area, but it also possesses eighty percent of the agricultural land of the Soviet Union. Of this region west of the Urals (excluding northern wasteland), sixty-five percent is devoted to agriculture. By contrast, only two percent of Soviet Asia is agricultural area.

ON THE EVE of World War II, the land area actually sown for crop production totaled 373 million acres. This takes on more meaning when it is broken down into sown acres per person, compared with similar per capita figures for other nations. The per capita figure runs about 2.2 acres for Russia, 2.8 for the United States, and .45 for China. However, the available agricultural produce is not in direct proportion to the amount of sown area per person, as agricultural efficiency is an important contributing factor. Comparison of farm efficiency of the Soviet Union and the United States discloses that it takes about two Soviet farm families to produce the food for themselves and one non-farm family. In the United States, one farm family feeds itself and five to six non-farm families. This explains why the population of Russia is sixty-five percent rural (agricultural) and thirty-five percent urban (industrial). Reasonably acceptable figures show that there has actually been a considerable overall increase in the production of grain in the Soviet Union under the Communist regime. However, the real criterion of agricultural progress is production measured on a per capita basis. Consequently, the following table is significant:

TOTAL RUSSIAN PRODUCTION IN GRAIN CROPS (per 100 persons)

1913	1938	1949
63 tons	55 tons	39 tons

The conclusion is evident: Soviet grain production is, in terms of the number of persons to be fed, far below that of the Tsars. It would be less than realistic to contend that such a per-capita decrease has not had its effect on standards of diet. In addition to the decrease in grain production, there has also been a decrease in the production of potatoes and vegetables when measured on a per capita basis.

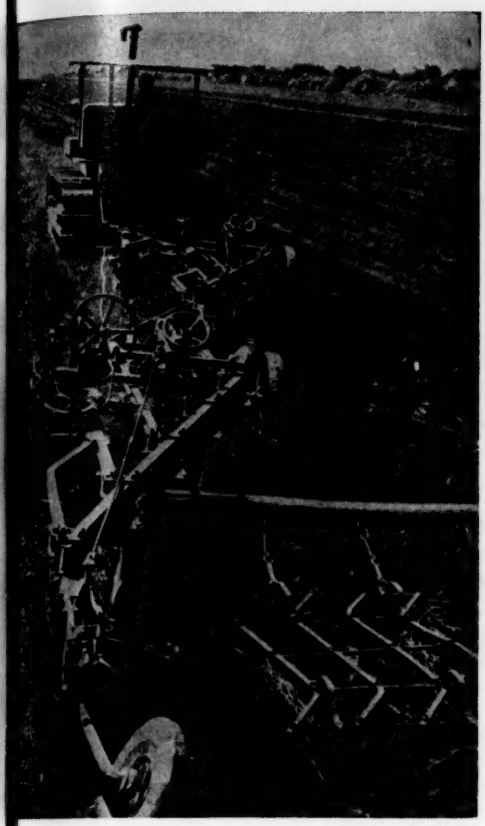
As in the case of grain crops, livestock totals are more meaningful when considered on a per capita basis. Following are livestock totals translated in terms of population:

FARM ANIMALS IN THE SOVIET UNION (per 100 persons)

	1913	1949
Cattle	48	28
Sheep and goats	97	47
Hogs	17	9

As can be readily seen, there is, on a population basis, less livestock under the Soviets than under the Tsars. What is more important is that the decrease is large enough to be of major significance in evaluating the food reserve the Soviet Union would have to depend upon in event of war. In short, there is considerably less meat per person today in the Soviet Union than there was when Imperial Russia moved into World War I.

One of the principal reasons given by students of Soviet economy for the comparatively low grain and livestock production in the Soviet Union is the emphasis of the Communist rulers on industrialization. This constant striving for greater industrialization has been characterized by a planned shift of population from



Sovfoto

Ukraine—rich, black chernozems

rural to urban areas, which in turn means more hands for industry but less on the farm. There can be little question but what Soviet agricultural efficiency is superior to that of the time of the Tsars, but such technological improvement has not been able to compensate for the stepped-up movement of peoples from farm to city. Unquestionably, the agricultural economy of the country is being knowingly stretched thin. It apparently is a calculated risk by the Soviet government. It is also a risk that could prove a serious miscalculation in event of war, because it does not provide the kind of agricultural foundation required to support a nation's war-time economy. While more a matter of speculation than geography, the question might be asked as to whether the Soviet rulers would deliberately so weaken their national agricultural base if they considered a major war imminent.

There are four major industrial areas in the Soviet Union. They are the Ukranian, Ural, Kuzbas, and Central regions. Three of them, the Ukraine, Urals, and Kuzbas, account for most of the heavy industry, while the Central region is devoted to light industry and machinery. The Ukraine is far and away the largest and the most important to the peace and war economy of the nation. Map 1 on pages 54-55 summarizes the principal industrial regions, together with the major cities and the dominant industrial activity in each.

As is so often the case in industrial development of any nation, Russian industry is concentrated largely on the basis of proximity to coal and iron reserves. Yet it would be wrong to visualize the coal and iron centers as immediately adjacent installations, because considerable hauling is required to get coal and iron together even in the same industrial areas. For instance, in the heavily concentrated Ukraine, Donbas coal and Krivoi Rog iron are 200 miles apart; iron in the Urals is 600 miles from the Karaganda coal mines and 1,200 from the great coal fields of the Kuzbas basin. With such extensive hauling, practically all by rail, the Russian transportation system is undoubtedly a weak feature of Soviet industry, for precision bombing of the coal and iron transportation net would immobilize Soviet steel production, the foundation of any great peace or war economy. As far as coal reserves are concerned, the Soviet Union appears to have little cause for worry, as she ranks second only to the United States in estimated reserves.

Current Soviet steel production is estimated to run about thirty million tons per year. Compared to the U. S. total of well over 100 million, it may seem Russia is too far behind to be a serious threat in production of steel-fabricated war materiel. However, it must be remembered that, with a much lower standard of living in the Soviet Union, far less steel is required for civilian consumer goods than in the United States. The result is that Russia obtains far more in the way of war material from each ton of steel than does this country. Any appraisal of Soviet steel adequacy should consider the fact that estimated current production is about one-third greater than Germany's World War II peak.

Neither does Russia appear to have reason to fret over the sources of metal alloys. Among the important non-ferrous metals, only tin presents a major problem. Strenuous efforts are being made to eliminate this shortage by development of reserves in the Verkhoyansk region of northeastern Siberia. Russia has twenty percent of the world's chrome ores, the bulk of the world's manganese, and is the world's third largest producer of aluminum.

In the matter of non-ferrous metals, as in the case of coal and iron, the key

Coal reserves—Russia ranks second to U. S.

Sovfoto

war-time problem would not be one of resources nor even of production, but rather of transportation and delivery from the points of extraction and smelting to the manufacturing areas. The great dependence of Soviet industry on maintenance of transportation can be realized from the fact that the largest production of

Sovfoto

Zhdanov—steel mills produce thirty million tons

lead in the Soviet Union is located in Kazakhstan, in south Soviet Asia, and the center of zinc production is in the Caucasus, both producing centers well removed from the heavy industrial areas of European Russia.

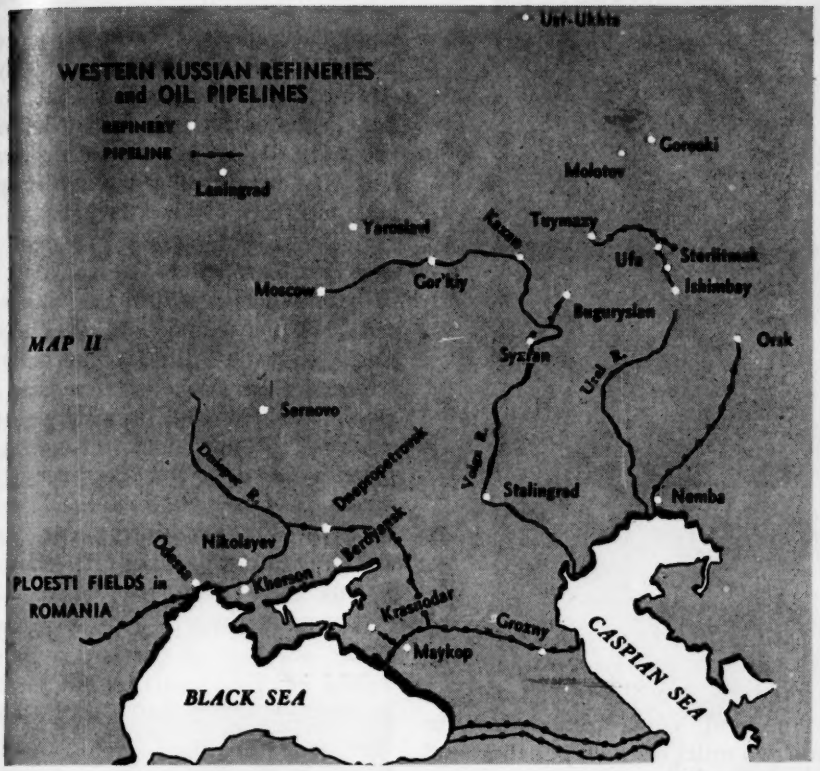
OIL RESOURCES and production are a crucial factor in determining the strategical capabilities of the Soviet Union. Some geographers have estimated Russia to have up to fifty-nine percent of the world's oil reserves, a figure viewed by others as far too high. The bulk of the known oil reserves is in a relatively narrow belt along the western Urals and extending down into the Caucasus. It is this Caucasus region that is the heart of the Soviet oil production, accounting for about seventy-five percent of the total national output. Grozny-Maikop and Volga-Ural production amounts to fifteen percent and four percent respectively. The military problem presented by the relatively distant and highly concentrated character of the Baku fields is readily apparent. Both the fields and the transportation of the oil from them would offer a tempting target to land and sea-based aviation. However, in view of the relative ineffectiveness of Allied raids against the Ploesti fields in Romania during World War II, it would seem that precision air attacks against the oil transportation system would be the most effective device for depriving Soviet industry and arms of oil. The result, from the Red standpoint, could well be catastrophic.

PRODUCTION, more than reserves, is the problem of Russian oil in the foreseeable future. On the basis of comparison with other major types of production in Russia, oil is lagging far behind. In 1901, for instance, Russia, turning out eleven million tons, accounted for fifty percent of the world production of oil. In 1951, with thirty-two million tons, it is but ten percent of the world total. The United States, incidentally, has from sixty to seventy percent of the total.

By U.S. standards oil transportation methods in the Soviet Union are behind the times. In this country, seventy-nine percent of the oil is transported by pipelines, two percent by rail, and nineteen percent by water. In Russia it is only eleven percent by pipelines, forty-three percent by rail, and forty-six percent by water. Such dependence on water and rail transportation again points up the vulnerability of the oil distribution system to the proper type of precision air attack.

Map 2 on page 59 shows the Soviet oil pipeline system and location of the bulk of refineries in western Russia, which includes the Ural, Emba, and Baku fields. The map illustrates the close location of refineries to the river transportation system, and points up, in addition, why so much of the transportation of Soviet oil is accomplished

Sovfoto



by a transfer between pipeline and river barges.

Any assessment of Russian oil adequacy as well as vulnerability should take careful account of the newly developed fields in the Volga basin west of the Urals. This new area, result of exploration in the late '30s, has been hailed as a "Second Baku." Whether it rates such comparison is questionable, but there is no doubt but what it will become a major source of Soviet petroleum production. The official forecast for 1950 was 250,000 barrels per day for this newly developed area. If such a production was attained, it would mean that about one-third of all Soviet oil came from that area. As can be readily seen, an increase in importance of this inland field would reduce the reliance on the more vulnerable Baku production area.

Russia, while not brimming over with oil production, can hardly be considered a have-not nation, either from the standpoint of current production or reserves. The quantitative inferiority of the Soviet Union in comparison with the United States is in the matter of oil, as in steel production, not a true criterion of Russian adequacy or inadequacy. Under a rigidly planned economy the military has prior call on available petroleum products and does not compete with heavy private civilian demands. Oil requirements for a nation whose populace rides bicycles or walks is significantly less than for one in which two cars in a family garage is commonplace. So, despite the frequent assertions to the contrary, it is doubtful if Russian petroleum production is inadequate to fill the essential needs of a strict war economy.

Not even a cursory examination of Russian resources would be complete without reference to the vast manpower pool of that nation. With a shortage of technological machinery to support the ever-increasing demands for greater industrialization, the Soviet rulers have utilized the manpower resources as a substitute for machinery. Of course, it is recognized that such use of manpower is not as efficient as well-designed mechanical equipment, but at the same time it is, in the cold calculation of Soviet leaders who are willing to sacrifice individual lives in furthering attainment of the goal of a greater Soviet Union, a workable, relatively cheap, and well-nigh inexhaustible means of developing Russian industry in spite of mechanical deficiencies. The forced labor, or concentration camp, system is the result.

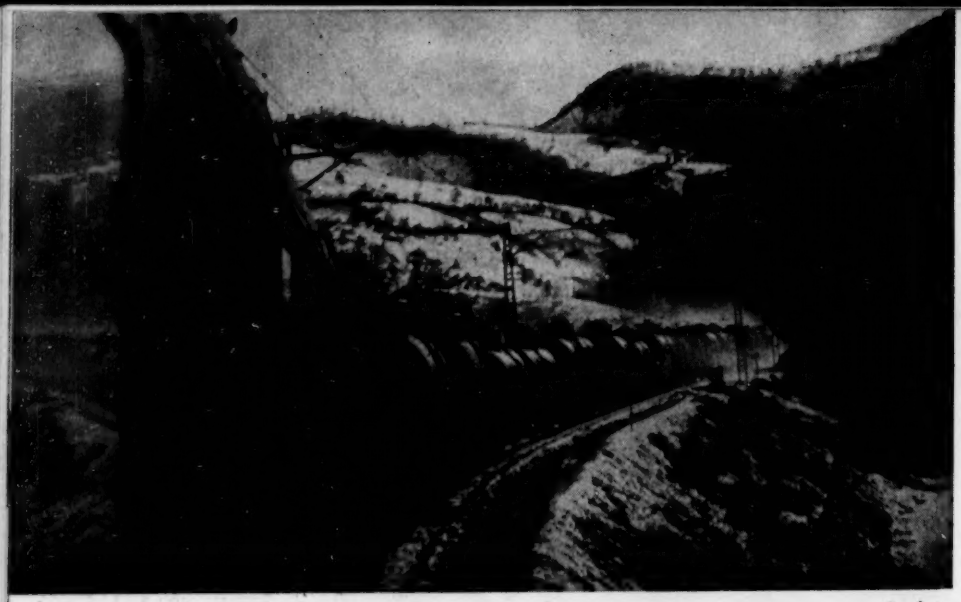
By using forced labor the Soviet is able to push development of areas into which free labor would slowly, if ever, migrate. Consequently, forced labor is a major instrument for exploiting the natural resources of Siberia. There are three principal areas of labor camps in Siberia: (1) the Kolma Region in northeast Siberia, noted for its gold mines; (2) the Yenisei River basin in north central Siberia, being developed for its timber and coal resources; and (3) the Pechora Plain-Vorkutu area, in northeast European Russia, where timber, oil, and coal are found.

Sovfoto

Baku—the military taps it first

In 1928 there were about 28,000 in Soviet concentration camps, and by 1931 the total zoomed to 2,200,000. By 1943 the estimated total was about 12,000,000. It has been further estimated that about twelve to sixteen percent of all adult Soviet males are in concentration camps.

In the Soviet Union, as in any large



Sovfoto

Railways — 2.7 miles per 10,000 persons

area nation, transportation is of primary importance to the maintenance and growth of the economy in peace as well as being an indispensable factor in determining the success or failure of a major war effort. There is no question but what the rail system of Russia is of crucial importance in estimating the strategic capabilities of that nation, for only by the rail net can the many widely dispersed resources and industrial capacity be brought together. In a large sense the rail capability of Russia is a criterion of her strategic capabilities.

BY ANY STANDARDS Russia compares unfavorably with the United States in terms of rail transportation. In1940, for instance, the Soviets had a total of about 60,000 miles of railroad in the entire country. This would equal about twenty-five percent of the United States total. Such a comparison is all the more indicative when it is realized that the Soviet Union has 2.3 times the land area of the United States.

Generally, as would be expected, rail net density corresponds with the population density. (Map 1) This means that the heaviest rail concentration is in the Ukraine, where the rail density runs about fifty-two miles of track per thousand square miles. Gradually, the rail density thins out to the eastward. In the Volga region it is down to about half of the Ukrainian density, or about twenty-five miles per thousand square miles. In the Far East, rail density figures drop precipitously from the Ukraine and Volga totals down to about two miles of track per thousand square miles of area.

Again such figures have somewhat more meaning when compared with United States totals. The average rail net density of the entire Soviet Union will run about 0.6 miles per thousand square miles of area; in the United States we have 7.7 miles of railroad per thousand square miles of area.

Rail density in terms of population is another useful basis of comparison. The Soviet Union has about 2.7 miles per 10,000 persons. The United States has 18.2 for the same number of inhabitants.

Under the Soviets the Trans-Siberian Railroad has been double tracked for its entire length; and a long transportation loop, the Turk-Sib Railroad, connecting with the Trans-Siberian east of Omsk, passes south of Lake Balkhash, through the Central Asiatic Republics to Tashkent, where it connects with railroads to Moscow and the Caspian coast.

The double tracking of the Trans-Siberian, plus the recent route around Balkhash to Tashkent, constitute necessary and valuable additions to the strategic rail net of the Soviet Union. But while these additions to the rail system enhance Soviet war capabilities and strengthen the economy, they must be evaluated for what they are—significant improvements over previously existing facilities, but still not enough to give the Soviet Union the necessary rail net to support safely a strained war-time economy. It is at best a tenuous link militarily, and economically in peacetime; in war a link that would offer a tempting target for precision air attack.

THE TRANS-SIBERIAN Railroad, indispensable as it is to maintenance of Soviet influence and power in the Far East, is but a thin ribbon of steel stretching across the greatest land expanse in the world, over steppes and deserts, through narrow mountain gates, and over rivers. Severance of the Trans-Siberian road would isolate, except for air and infrequent water shipping around the north coast of Russia, the Far East from Soviet bases of power in the west.

Black Star

Manpower—well-nigh inexhaustible

In a Far Eastern war with any great western sea power, Russia would be at a distinct strategic disadvantage. The sea power nation, by using the oceans, would have a broad highway by which to deliver men and materiel to an Asiatic fighting front. True, Russian submarines could interfere with the flow of such tools of war, but

powerful balanced naval forces would inevitably protect the sea lanes from disruption by Soviet sub-surface units. On the other hand, Russia's Trans-Siberian Railroad, only connecting land route with the Far East, would be highly vulnerable to air attack by carrier and land-based air. Severance of the Trans-Siberian road, or even frequent and prolonged disruption of traffic, would isolate Russian and satellite forces in the Far East. This simply underlines again what thoughtful geopoliticians have long recognized—that the Far East is a sea power theater. Russia, greatest land power in the world, could not persevere against a great and determined sea power in Pacific Asia.

Because of the inadequacy of the Russian rail net, aviation is being rapidly expanded to provide travel and communications with the widely separated cities of the Soviet Union. At the present time it is estimated that scheduled air routes total 26,000 miles.

Highways do not hold much promise of relieving the transportation problem resulting from the sparse rail system. Of a total of about 840,000 miles of roads in Russia, only about 60,000 are hard-surfaced by either gravel or cobblestone. Less than 3,000 miles are asphalt. (These totals are based on figures at the beginning of World War II).

Black Star

Baku to Astrakhan—horse trails only

THUS MOST OF the roads are dirt —mud in summer rains, and frozen ruts in winter. It can be readily appreciated why the Soviet road system —or lack of it—would be an important factor in any Russian military operation. It would certainly influence the type and amount of motor transport and armored forces and would, as well, possess important logistical implications. It also helps explain why the Soviet Union still maintains such large horse cavalry forces.

Here is the salient fact that emerges from evaluation of the Soviet industrial and transportation system: At maximum efficiency it is probably equal to the demands of a war economy. Attainment of such maximum potential would depend on every major element of Russian economy making its timely contribution to the overall effort. The objective, therefore, of any Soviet enemy would be to prevent the smoothly coordinated meshing of the Soviet Union's industrial gears. Thus, disruption of the transportation system would be the most effective means of undermining Soviet wartime economy.

IN SUMMATION, the following salient conclusions regarding Soviet strength and weakness can be deduced:

a. Today, as in the time of Peter the Great, the vital area of Russia is the region west of the Urals. There is located the bulk of population, industry, and usable resources.

b. In terms of population trends, Russia is getting relatively stronger and Europe weaker.

c. The Ukraine is the industrial and agricultural heart of European Russia.

d. The minority national groups of the Soviet Union are a potential source of domestic trouble to the Kremlin in event of war.

e. Russia, with a rigidly controlled economy, has adequate metal resources and steel production to support a war effort.

f. It would be dangerous to assume that oil output in the Soviet Union is inadequate for the armed forces. However, the oil fields and petroleum transportation lines from the Baku region are vulnerable to carrier and land-based air attack.

g. It is highly questionable if Soviet agriculture is adequate to support a growing population and a major war.

h. Sea power could triumph over Soviet land power in Pacific Asia.

i. Transportation is the "Achilles' Heel" of Soviet power.

In short Russia's strength lies in her tremendous raw material and population reserves coupled with a rigidly controlled economy which could release sufficient oil and steel for a war effort.

Her weakness lies in an inadequately developed agriculture program, and a vulnerable transportation system linking widely separated raw material sources and production centers.

Comparing the Soviet's transportation system to the nerves in a body, Russia is a giant—subject to a nervous breakdown in an all-out war. USMC

passing in review

BOOKS OF INTEREST TO OUR READERS

Halberdier Crouchback . . .

MEN AT ARMS — Evelyn Waugh, 342 pages. Boston: Little, Brown and Company. $3.50

The commissioning of Guy Crouchback, a refined, innocuous gentleman of early middle age, as a subaltern in one of His Brittanic Majesty's furiously traditional regiments occasions a sort of tranquil drama which explodes, from time to time, into violent activity. In this account of modern "Men at Arms," English satirist Evelyn Waugh has depicted a Twentieth Century citizen soldier, conscientiously dedicated to the duties of a profession in which he does not quite fit.

The author has drawn freely from his own experiences as a World War II infantry officer in writing this initial offering of a trilogy depicting the personal aspects of the last great, international conflict. Heretofore noted as a tongue-in-cheek moralist whose previous works abound with marked overtones of urbane sophistication, Mr. Waugh is remarkably at home amid the clatter and confusion of contemporary military operations. But his richest assets are to be found in witty style and crisp character delineation.

Motivated by sincere patriotism, Crouchback joins the spit-and-polish Corps of Halberdiers as a probationary officer and, in his efforts to advance himself in the service of his country, a thrilling purpose intrudes upon his lack-lustre life. Older than most of his fellow officers, he befriends Apthorpe, a vigorous go-getter of comparable age, only to find himself overshadowed by his comrade to whom promotion and recognition come rapidly. But Crouchback's innate potential as a combat leader win him the esteem of his flamboyant brigadier, Richie Hook, glowering behind a black eye patch and monocle. At length he surpasses even Apthorpe whose decline in prestige is measured by his friend's ascent.

This pattern of rise and fall is well spattered with humorous episodes ranging from the usual administrative "flaps" (foul ups) to a mildly booby-trapped medicine chest. In Apthorpe's meticulous pomposity and Richie Hook's bombastic pronouncements there is a bountiful supply of good-natured satire.

The action of *Men at Arms* takes the reader through the complacent days of the 1939 and early 1940 "sitzkrieg," the shock of the Nazi conquests in Western Europe, and the grim beginnings of the Battle of Britain. But it is during the abortive attack on Dakar that Crouchback, along with Richie Hook, becomes involved in so grotesque a military escapade that the careers of both officers are seriously threatened.

In *Men at Arms,* the author has revealed a substantial affection and cautious esteem for the military. While poking fun at the stiff-backed Halberdiers, Waugh indicates a real understanding for the abiding values of their traditions and esprit de corps. And while enjoying this satire on the militarism of a first-rate British regiment, Marine readers may well see a partial reflection of themselves.

This is a pleasant and slightly provoking yarn. It is gratifying to know that more of the same are on the way.

Reviewed by 1stLt Alfred J. Croft, Jr.

Tactics in Armor . . .

PANZER LEADER—Gen Heinz Guderian, 466 pages. New York: E. P. Dutton Co. $7.50

General Heinz Guderian exploited the armored mobility of tanks from the 1939 invasion of Poland to the final battles of the German homeland. It was his lot to win battles, but to lose the war.

His book presents the picture of Guderian as a complete staff and liaison team in himself. He visited his units, looked around, issued orders, and was off again as quickly as you can turn the page. He knew the situation up front at all times and thus his patience was short with those who mouthpieced the situation from G-3 and G-2 maps. His battles are described with honesty and insight, particularly the role played by armor in success or defeat.

You may conclude, from reading the book, that an armored attack in riposte or against an enemy off balance has an excellent chance for success while one against an enemy in position will fail. In addition, Guderian concludes for you that fighting against an enemy superior in tanks is fatal.

He writes of meeting the Russian T-34 for the first time in the fall of 1941:

"Our defense weapons available at that period were only successful against the T-34 when the conditions were unusually favorable. The short barrelled 75mm gun on the Panzer IV was only effective if the T-34s were attacked from the rear. Even then a hit had to be scored on the grating above the engine to knock it out."

Guderian's masterpiece of understatement follows this observation.

". . . and it requires great skill to maneuver into a position from which such a shot would be possible."

His insight into the problems of the tactical use of armor are keen, how-

ever. Even as Chief of Staff of the German Army, Guderian was aware of the problems of the individual tankman and the effect on him of fatigue and bad weather. One of his more serious arguments with Hitler developed over the concern Guderian voiced over troops not receiving winter clothing in time.

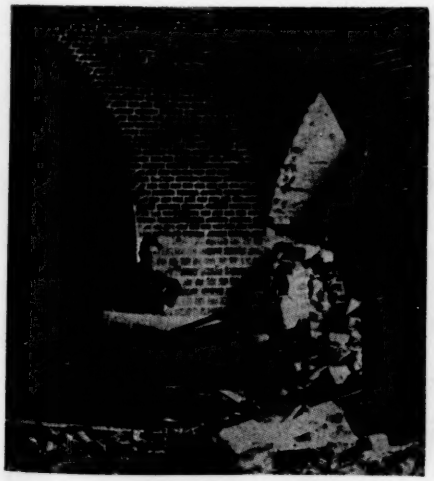
This is not a "must" book for every library, nor a "can't put it down" type. As a matter of fact you will find it necessary to put it down occasionally, as the reading is heavy and the sketch maps are difficult to follow.

Although little description of close support tank-infantry fighting will be found in the book, Guderian and his *Panzer Leader* of World War II is just as essential to the student of mobility as is the study of Sherman and Forrest in our own Civil War.

Reviewed by LtCol J. L. Frothingham

North vs South in pictures . . .

DIVIDED WE FOUGHT — Picture and Caption Editors: Hirst Milhollen, Milton Kaplan, and Hulen Stuart. General Editor and Author of the Text: David Donald. 441 pages. Picture History. New York: The Macmillan Company. $10.00



From *Divided We Fought*

A pictorial history of the War Between the States told with over five hundred photographs and drawings. In this comprehensive collection of photographs and drawings, many of which were made upon the field of battle, the authors present in grim and dramatic fashion the story of the Civil War from Fort Sumter to Appomattox. The effectiveness of the illustrations is heightened by the use of a text based on original letters and eyewitness accounts.

Divided We Fought is not a formal history of the war, nor was it intended to be. While the text holds to the general pattern of the war, the photographic coverage of a particular campaign is governed more by the material available than by its importance in comparison to other campaigns of the war. As the authors note, the campaigns in the west are not given space commensurate with their importance because of a lack of material. This is a picture story not only of the leaders of the war but also the common soldier, and the places where he lived, and fought, and died. It will therefore provide for either the serious student or the interested reader a sense of realism about the Civil War that is unobtainable from ordinary textbooks on the subject.

Hirst D. Milhollen and Milton Kaplan, both of the Library of Congress, who co-authored *Presidents on Parade*, are the picture editors of this book. They spent considerable time and effort in investigating private, as well as public, collections for proper material. The pictures of the famed Civil War photographer Matthew Brady and his assistants are utilized, along with those of lesser known photographers of the period. The battlefield sketches of Alfred and William Waud and Edwin Forbes selected for inclusion are most impressive.

David Donald, assistant professor of history at Columbia University, has made skillful use of contemporary quotations to provide added significance to the pictures selected, and has prepared chapter introductions which aid in providing continuity for the reader.

In view of the book's limited coverage of the Confederate forces, the authors' claim that the Civil War was the best photographed in history does not appear justified. *Divided We Fought,* however, is a book that should prove a welcome addition to the library of anyone interested in this phase of American history.

Reviewed by LtCol R. W. Glickert

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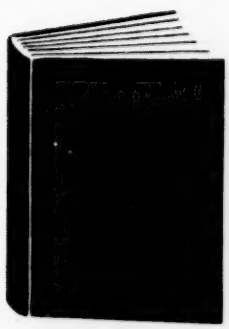

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